

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: P776240

Luminaire Tested: HCDJBL3040CSD-HCD41TRH-4000lm-2700K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776240
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B029)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL3040CSD-HCD41TRH-4000lm-2700K
Description: 4 INCH ROUND SHALLOW-WIDE HAZE TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 2700K CCT
Ballast/Driver: -

Summary

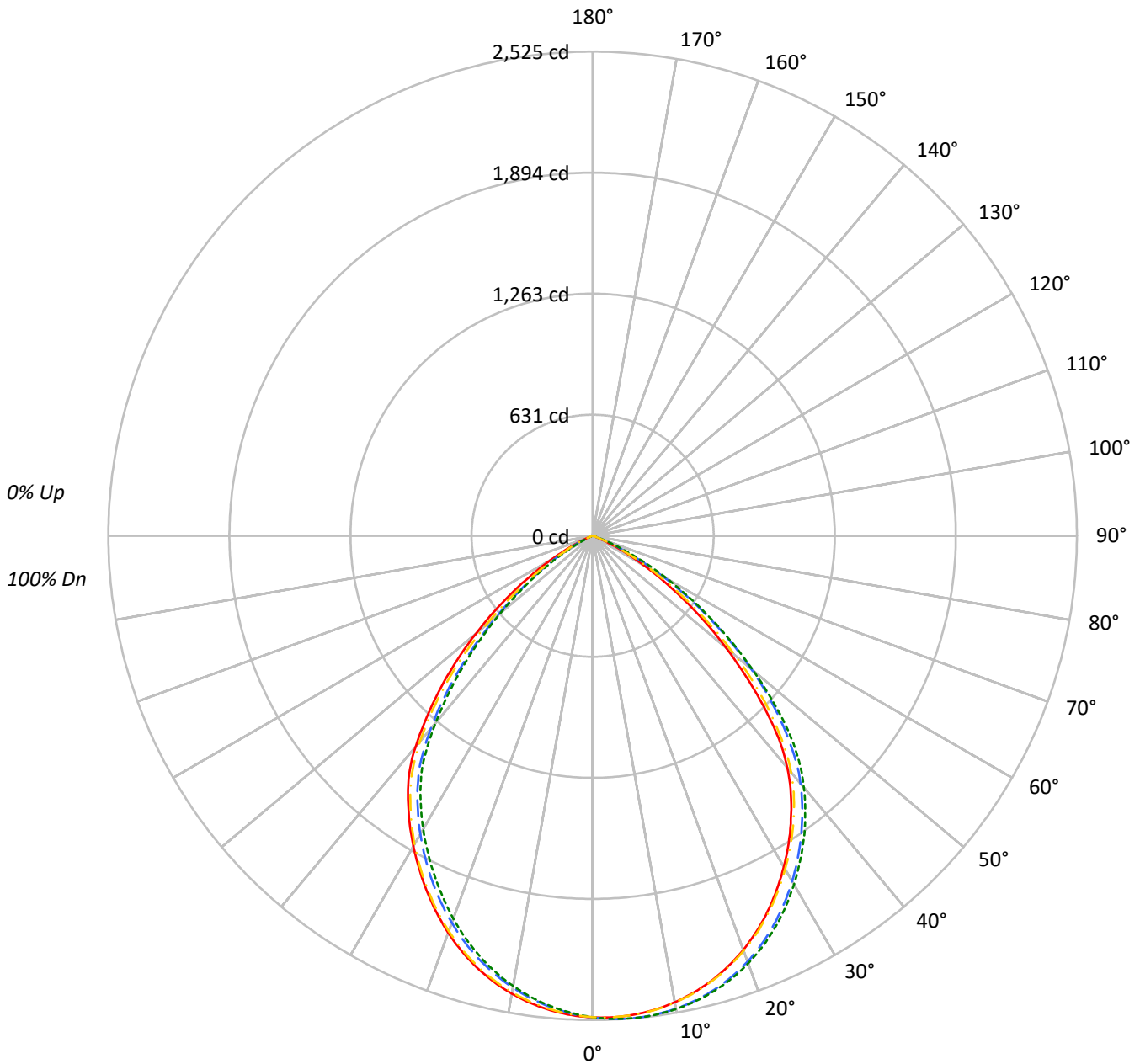
Lumens per Lamp: N/A
Luminaire Lumens: 4492.3 lumens
Efficiency: N/A
Efficacy: 116.7 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.15 / 1.22
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 38.5
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	109	105	103	109	106	104	101	102	100	98	98	97	95	95	94	92	90								
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80								
3	97	89	83	77	95	87	82	77	85	80	76	82	78	74	80	76	73	71								
4	90	81	74	68	88	79	73	68	77	71	67	75	70	66	73	69	65	63								
5	84	73	66	60	82	72	65	60	70	64	60	69	63	59	67	62	58	57								
6	78	67	60	54	77	66	59	54	65	58	53	63	57	53	62	57	53	51								
7	73	62	54	49	72	61	54	49	59	53	48	58	52	48	57	52	48	46								
8	69	57	49	44	67	56	49	44	55	48	44	54	48	44	53	47	43	42								
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	44	40	38								
10	60	49	42	37	59	48	41	37	47	41	37	46	41	36	46	40	36	35								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	316047	316047	316047	316047
5°	316660	318896	313906	311228
10°	315619	320321	309881	304680
15°	312825	320030	303730	295874
20°	307736	317754	294973	284487
25°	299923	312824	283927	271138
30°	289708	305170	271688	256735
35°	276910	295147	257860	239977
40°	259521	281536	235799	209119
45°	225107	257232	198802	167780
50°	178030	214113	155690	122759
55°	127895	165459	109355	77935
60°	78178	112787	62623	37403
65°	32816	60272	23436	11078
70°	7359	17662	6770	4820
75°	5057	6516	4668	3161
80°	3624	5001	3334	2247
85°	1155	4476	578	578

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 45°
 Luminance: 257232 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	236.6	5.3
10°-20°	665.9	14.8
20°-30°	967.5	21.5
30°-40°	1083.8	24.1
40°-50°	912.5	20.3
50°-60°	491.3	10.9
60°-70°	121.1	2.7
70°-80°	11.6	0.3
80°-90°	2.0	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°	1870.0	41.6
0°-40°	2953.8	65.8
0°-60°	4357.6	97.0
0°-90°	4492.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4492.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2511	2511	2511	2511	2511	
5°	2507	2524	2485	2464	2507	238
15°	2401	2456	2331	2271	2401	676
25°	2160	2253	2045	1953	2160	993
35°	1802	1921	1678	1562	1802	1124
45°	1265	1445	1117	943	1265	967
55°	583	754	498	355	583	525
65°	110	202	79	37	110	124
75°	10	13	10	6	10	12
85°	1	3	0	0	1	2
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°	2511.3	2511.3	2511.3	2511.3	2511.3	2511.3	2511.3	2511.3	2511.3	2511.3	2511.3
0.5°	2512.8	2514.3	2515.1	2514.3	2513.6	2512.0	2511.3	2510.5	2510.5	2510.5	2509.7
1°	2513.2	2516.2	2517.4	2517.0	2515.9	2514.3	2512.0	2510.1	2508.9	2507.8	2506.3
1.5°	2513.6	2517.4	2519.7	2519.3	2518.2	2515.9	2512.8	2509.7	2507.0	2504.7	2502.8
2°	2513.6	2518.5	2521.2	2521.2	2520.1	2517.0	2512.8	2508.6	2505.1	2501.7	2499.0
2.5°	2513.2	2519.3	2522.8	2522.8	2521.6	2517.8	2512.8	2507.0	2502.4	2498.2	2494.4
3°	2512.4	2519.7	2523.5	2523.9	2522.8	2518.5	2512.0	2505.5	2499.7	2494.4	2490.1
3.5°	2511.3	2519.7	2524.3	2525.1	2523.5	2518.5	2511.3	2503.6	2496.3	2489.7	2485.1
4°	2510.1	2519.3	2524.7	2525.5	2524.3	2518.5	2510.5	2501.3	2492.8	2485.5	2480.1
4.5°	2508.6	2518.5	2524.7	2525.8	2524.7	2518.2	2508.9	2498.6	2489.0	2480.9	2474.4
5°	2506.6	2517.8	2524.3	2526.2	2524.3	2517.4	2507.0	2495.5	2484.8	2475.5	2468.6
5.5°	2504.3	2516.6	2523.5	2525.8	2524.3	2516.2	2505.1	2492.4	2480.1	2470.2	2462.9
6°	2501.7	2515.1	2523.2	2525.1	2523.5	2515.1	2502.4	2488.6	2475.5	2464.4	2456.3
6.5°	2498.6	2513.2	2521.6	2523.9	2522.4	2513.2	2499.7	2484.8	2470.2	2458.3	2449.4
7°	2495.9	2510.9	2520.1	2522.8	2521.2	2511.3	2496.7	2480.5	2464.8	2452.1	2442.1
7.5°	2492.1	2508.6	2518.2	2521.2	2519.3	2508.9	2493.6	2475.9	2459.0	2445.2	2434.8
8°	2488.2	2505.9	2515.9	2519.3	2517.4	2506.3	2489.7	2470.9	2452.9	2437.9	2427.2
8.5°	2484.0	2502.4	2513.6	2517.0	2515.1	2503.6	2485.5	2465.6	2446.0	2430.2	2419.1
9°	2479.8	2499.0	2510.9	2514.3	2512.4	2500.1	2481.3	2459.8	2439.4	2422.6	2410.6
9.5°	2474.8	2495.1	2507.4	2511.6	2509.7	2496.7	2476.7	2454.0	2432.2	2414.9	2402.2
10°	2469.8	2491.3	2504.0	2508.2	2506.6	2492.8	2471.7	2447.9	2424.9	2406.4	2393.4
10.5°	2464.4	2486.7	2500.1	2504.7	2502.8	2488.6	2466.3	2441.0	2416.8	2397.6	2383.8
11°	2458.6	2482.1	2495.9	2500.9	2499.0	2484.0	2460.6	2434.1	2408.7	2388.8	2374.2
11.5°	2452.5	2476.7	2491.7	2496.7	2494.7	2479.0	2454.8	2426.8	2400.3	2379.2	2364.6
12°	2446.4	2471.3	2486.7	2492.1	2490.5	2473.6	2448.7	2419.5	2391.4	2369.6	2354.2
12.5°	2439.4	2465.6	2481.3	2487.1	2485.5	2468.2	2441.8	2411.0	2382.2	2360.0	2343.5
13°	2432.5	2459.4	2475.9	2482.1	2480.5	2462.5	2434.8	2403.0	2372.6	2349.6	2333.1
13.5°	2424.9	2452.9	2469.8	2476.3	2474.8	2456.3	2427.5	2394.5	2363.0	2338.5	2321.6
14°	2417.2	2446.0	2464.0	2470.5	2469.0	2450.2	2420.2	2385.7	2352.3	2327.7	2310.0
14.5°	2409.1	2439.1	2457.5	2464.0	2462.9	2443.3	2412.2	2376.1	2341.9	2316.2	2298.5
15°	2401.0	2431.8	2450.6	2457.5	2456.3	2436.0	2404.1	2366.1	2331.2	2305.1	2286.6
15.5°	2392.2	2423.7	2443.3	2450.6	2449.4	2428.7	2395.3	2356.1	2319.6	2292.4	2273.6
16°	2383.0	2415.6	2436.0	2443.7	2442.1	2420.6	2386.8	2346.1	2308.1	2280.1	2260.9
16.5°	2373.4	2407.2	2427.9	2436.0	2434.8	2412.6	2377.2	2335.0	2295.8	2267.8	2247.8
17°	2363.8	2398.0	2419.9	2427.9	2427.2	2404.1	2367.6	2323.9	2283.9	2254.8	2234.8
17.5°	2353.4	2389.1	2411.0	2419.5	2418.7	2395.3	2357.7	2312.7	2270.9	2241.3	2220.6
18°	2343.1	2379.5	2402.2	2410.6	2410.3	2386.1	2347.3	2301.2	2257.8	2227.5	2206.8
18.5°	2332.3	2369.6	2393.0	2401.4	2401.4	2376.9	2336.9	2288.9	2244.4	2213.3	2192.2
19°	2321.2	2359.2	2383.0	2392.2	2392.2	2366.9	2325.8	2276.6	2230.6	2198.7	2178.0
19.5°	2309.7	2348.4	2373.0	2382.2	2382.6	2356.9	2314.7	2263.6	2216.7	2184.5	2162.6
20°	2297.8	2337.3	2362.6	2371.9	2372.6	2346.1	2302.7	2250.5	2202.5	2169.9	2147.6
20.5°	2285.5	2326.2	2351.5	2361.5	2362.3	2335.4	2291.2	2237.1	2187.9	2154.1	2132.3
21°	2272.8	2314.3	2340.4	2350.7	2351.5	2323.9	2278.9	2223.6	2172.6	2138.8	2116.5

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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°	2232.9	2277.0	2304.3	2315.4	2317.3	2288.2	2239.8	2180.6	2126.5	2090.4	2067.8
23°	2219.4	2263.6	2291.6	2302.7	2305.4	2275.5	2226.3	2166.1	2110.8	2074.3	2051.2
23.5°	2204.8	2250.1	2278.6	2290.5	2292.8	2262.8	2212.1	2150.7	2094.2	2057.4	2034.0
24°	2190.2	2236.3	2265.1	2277.0	2279.7	2249.4	2197.9	2135.7	2078.1	2040.5	2016.7
24.5°	2175.3	2221.7	2251.3	2263.6	2266.3	2235.6	2183.3	2119.6	2061.6	2023.6	1999.4
25°	2159.9	2207.5	2237.1	2249.8	2252.8	2221.7	2168.7	2104.2	2044.7	2006.7	1982.1
25.5°	2144.5	2192.9	2222.9	2235.9	2239.4	2207.9	2153.8	2088.1	2027.8	1988.6	1964.5
26°	2128.8	2177.6	2207.9	2221.3	2224.8	2192.9	2138.8	2072.0	2011.3	1971.0	1946.4
26.5°	2112.7	2162.2	2193.3	2206.8	2209.8	2178.0	2123.0	2055.1	1993.6	1952.9	1928.4
27°	2096.9	2146.5	2178.0	2191.8	2195.2	2162.6	2107.3	2039.0	1976.0	1935.3	1909.9
27.5°	2080.0	2130.3	2162.2	2176.8	2179.9	2147.2	2090.8	2022.1	1958.7	1917.2	1891.5
28°	2063.1	2114.2	2146.1	2161.1	2164.5	2131.1	2075.0	2005.2	1941.0	1898.8	1873.1
28.5°	2046.2	2098.1	2130.0	2144.9	2148.8	2115.7	2058.5	1987.5	1923.0	1880.8	1853.9
29°	2029.0	2081.2	2113.4	2128.8	2132.6	2099.6	2041.6	1970.2	1905.3	1862.3	1835.1
29.5°	2011.3	2064.3	2096.9	2112.7	2116.5	2083.1	2024.4	1952.9	1887.3	1843.1	1816.2
30°	1993.6	2046.6	2079.7	2095.4	2100.0	2065.8	2007.8	1935.7	1869.6	1824.7	1796.7
30.5°	1976.0	2029.4	2062.8	2079.3	2083.1	2048.9	1990.2	1917.6	1850.8	1805.9	1777.1
31°	1957.5	2012.1	2045.1	2062.0	2066.2	2032.0	1972.5	1899.6	1832.4	1786.7	1757.1
31.5°	1939.5	1993.6	2027.8	2044.3	2048.6	2014.4	1954.5	1881.5	1813.9	1767.5	1737.1
32°	1920.7	1975.6	2009.4	2026.3	2030.9	1996.3	1937.2	1863.9	1795.5	1747.9	1716.8
32.5°	1902.3	1957.2	1991.7	2009.0	2013.2	1978.7	1918.8	1845.4	1776.7	1727.9	1696.1
33°	1882.3	1938.3	1973.3	1991.0	1995.2	1961.0	1900.7	1827.4	1757.1	1708.0	1675.7
33.5°	1863.5	1919.9	1954.5	1972.5	1976.7	1942.2	1882.3	1807.8	1737.5	1687.6	1654.2
34°	1843.1	1900.7	1935.3	1954.1	1958.7	1924.1	1863.5	1789.0	1717.9	1667.6	1633.1
34.5°	1823.5	1880.8	1916.8	1935.3	1939.5	1905.3	1844.7	1769.4	1698.4	1646.5	1612.0
35°	1802.4	1860.4	1897.3	1916.5	1921.1	1886.1	1825.1	1749.8	1678.4	1625.8	1589.7
35.5°	1783.2	1840.8	1877.3	1896.5	1901.9	1866.5	1805.1	1730.2	1658.0	1604.7	1567.0
36°	1762.1	1820.5	1856.9	1877.3	1882.3	1847.0	1785.5	1710.3	1637.3	1583.2	1545.1
36.5°	1741.4	1799.7	1837.4	1856.9	1861.9	1827.0	1765.2	1690.3	1616.6	1560.9	1521.0
37°	1719.1	1778.6	1816.6	1836.2	1841.2	1806.3	1744.4	1669.2	1595.1	1537.1	1494.5
37.5°	1698.7	1757.5	1795.9	1815.9	1820.8	1785.9	1724.1	1648.1	1572.8	1511.0	1466.4
38°	1675.3	1736.4	1774.4	1795.1	1800.5	1765.2	1702.6	1626.6	1548.6	1483.7	1436.9
38.5°	1652.3	1714.9	1753.7	1773.6	1779.4	1743.7	1680.7	1603.9	1522.9	1455.7	1406.1
39°	1628.1	1691.8	1732.5	1752.5	1758.3	1722.2	1658.8	1579.3	1495.6	1426.5	1375.0
39.5°	1605.1	1668.4	1710.3	1731.0	1736.8	1699.5	1635.8	1552.8	1466.8	1395.8	1343.9
40°	1579.7	1645.0	1687.2	1708.0	1713.7	1677.2	1610.8	1525.9	1435.3	1364.7	1312.5
40.5°	1553.2	1620.4	1663.4	1684.9	1691.1	1653.0	1584.3	1497.2	1404.2	1332.8	1279.4
41°	1525.9	1594.7	1638.8	1661.5	1667.6	1629.2	1557.1	1468.0	1373.1	1300.2	1246.8
41.5°	1497.5	1567.0	1612.0	1635.8	1643.4	1603.9	1529.4	1438.8	1341.6	1268.7	1214.9
42°	1468.4	1539.0	1584.3	1609.3	1618.5	1577.4	1500.2	1408.8	1309.4	1233.7	1180.7
42.5°	1437.2	1509.8	1555.9	1582.0	1592.4	1549.4	1471.0	1377.7	1277.1	1200.3	1147.3
43°	1404.2	1479.5	1527.1	1553.2	1565.5	1520.2	1441.1	1345.1	1245.6	1167.3	1112.8
43.5°	1370.1	1448.4	1497.9	1524.0	1536.7	1490.6	1410.4	1313.2	1214.2	1134.3	1079.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1264.8	1352.4	1406.9	1433.8	1445.3	1395.4	1314.8	1216.5	1117.0	1034.1	977.2
45.5°	1228.4	1319.8	1376.6	1403.1	1411.5	1362.4	1281.7	1184.2	1085.5	1001.4	943.1
46°	1191.9	1286.0	1344.7	1371.6	1378.1	1328.2	1248.3	1151.6	1052.5	968.4	908.5
46.5°	1156.2	1250.6	1312.8	1339.3	1343.6	1294.0	1214.5	1118.9	1020.2	935.8	875.1
47°	1120.1	1216.5	1281.0	1307.1	1307.8	1258.7	1179.6	1085.5	988.0	903.1	841.3
47.5°	1084.4	1181.5	1247.2	1274.1	1272.5	1223.0	1145.0	1052.9	955.7	872.4	807.9
48°	1048.3	1146.6	1214.2	1240.7	1236.0	1187.3	1110.1	1020.2	922.7	839.4	775.3
48.5°	1012.9	1111.2	1180.7	1206.9	1200.3	1151.2	1075.2	987.6	890.8	807.5	743.8
49°	978.4	1076.3	1148.1	1173.1	1164.2	1115.1	1039.8	953.8	859.0	775.6	711.1
49.5°	943.1	1040.2	1113.6	1138.9	1128.9	1079.0	1004.9	921.6	827.5	744.9	680.0
50°	909.3	1004.9	1079.4	1103.6	1093.6	1042.5	969.2	887.8	795.2	714.2	648.9
50.5°	873.9	969.9	1044.8	1068.2	1059.8	1006.4	933.8	855.1	763.7	683.5	619.0
51°	840.5	935.4	1010.6	1033.7	1023.3	971.1	898.5	821.3	733.0	653.5	589.4
51.5°	806.7	900.1	975.3	998.0	988.8	936.9	864.3	789.9	702.7	624.0	561.4
52°	774.1	866.7	941.9	964.2	955.0	902.4	829.8	757.2	672.4	594.4	533.0
52.5°	740.7	832.9	906.6	928.5	921.9	866.7	796.0	724.6	642.0	565.2	505.7
53°	708.4	799.1	871.6	893.9	886.6	832.5	761.8	692.3	612.5	536.8	478.1
53.5°	676.2	765.3	836.3	857.8	852.4	799.1	729.2	661.6	583.3	509.2	451.9
54°	644.7	732.3	802.1	824.0	819.0	765.7	695.4	630.1	554.9	481.5	426.6
54.5°	613.2	700.4	768.0	789.5	787.5	732.6	663.9	598.6	526.1	454.6	401.6
55°	582.9	668.1	734.2	756.4	754.1	699.6	632.0	568.7	498.4	428.9	378.2
55.5°	552.2	636.3	700.4	721.9	721.1	668.1	601.3	539.1	470.8	403.2	356.3
56°	523.4	605.2	666.6	690.4	688.9	635.9	570.6	509.5	443.9	378.6	334.1
56.5°	493.8	574.8	634.0	657.4	658.1	604.8	540.3	480.4	417.4	355.6	311.8
57°	466.2	544.5	600.2	625.1	625.9	574.1	511.1	452.7	391.7	332.9	289.9
57.5°	438.1	514.5	568.7	592.5	594.8	544.5	482.7	425.5	366.3	309.9	267.6
58°	411.2	485.7	537.6	562.9	564.8	515.3	455.0	398.2	342.5	287.2	248.1
58.5°	385.1	457.7	506.9	531.8	534.1	486.9	428.1	372.5	318.7	264.2	229.2
59°	359.8	428.9	476.5	501.5	504.9	459.2	401.3	348.3	294.9	243.4	210.8
59.5°	335.2	401.6	447.0	471.1	476.5	432.0	375.5	323.7	271.1	223.9	193.1
60°	310.6	375.2	418.2	443.5	448.1	405.1	352.1	299.5	248.8	204.7	176.6
60.5°	287.2	348.7	390.1	415.1	420.5	379.8	328.7	275.3	227.7	186.6	160.1
61°	264.6	322.9	362.9	386.7	393.2	356.0	305.3	253.4	207.4	169.0	144.8
61.5°	243.1	298.7	337.1	360.2	367.9	332.5	281.8	232.7	187.8	152.8	130.6
62°	222.3	274.9	311.8	334.1	342.9	308.7	258.4	212.3	169.3	137.1	117.1
62.5°	201.6	251.9	286.8	308.3	317.9	285.3	237.3	193.1	150.9	122.5	104.1
63°	181.6	229.2	263.0	283.8	293.0	261.5	217.0	173.9	134.4	108.3	91.4
63.5°	162.0	207.7	240.4	259.2	268.0	240.4	197.8	156.7	118.7	95.6	80.3
64°	142.8	186.6	218.5	236.5	245.0	219.6	178.9	140.5	104.1	83.3	69.9
64.5°	126.3	166.3	197.8	214.3	223.1	199.3	162.0	125.2	91.0	72.2	59.9
65°	110.2	147.1	177.8	193.5	202.4	180.5	145.1	110.6	78.7	62.2	51.5
65.5°	94.1	130.6	158.6	173.6	182.0	162.0	129.8	97.1	66.8	53.0	45.3
66°	77.9	115.2	140.5	154.0	162.4	144.4	114.4	84.9	56.8	44.9	39.2



TEST NUMBER: P776240

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-2700K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	40.3	69.9	96.4	106.7	111.0	97.5	76.4	53.0	37.2	29.6	20.7
68°	32.3	58.7	81.4	92.5	96.0	84.1	65.3	44.9	31.9	24.2	18.0
68.5°	26.5	48.8	66.8	77.9	82.2	71.8	55.3	39.9	26.5	19.2	16.5
69°	23.0	40.3	55.3	63.4	69.1	60.7	46.8	35.3	21.1	17.3	15.4
69.5°	21.1	33.4	45.3	52.6	57.6	50.7	41.1	30.3	19.6	16.1	14.2
70°	20.0	27.6	36.9	43.4	48.0	44.5	35.7	25.3	18.4	15.0	13.4
70.5°	18.8	23.0	29.6	35.3	42.2	38.4	30.3	20.7	17.3	14.2	12.7
71°	17.7	19.6	24.2	28.8	36.5	32.3	25.0	18.8	16.1	13.4	11.5
71.5°	16.5	18.0	20.4	23.8	30.7	26.1	19.6	17.7	15.0	12.3	10.8
72°	15.4	16.9	18.0	20.0	25.0	20.0	18.0	16.5	14.2	11.5	10.4
72.5°	14.6	15.7	16.5	18.0	19.2	18.0	16.9	15.4	13.1	10.8	9.6
73°	13.8	14.6	15.4	16.9	17.7	16.9	15.7	14.6	12.3	10.0	8.8
73.5°	12.7	13.8	14.6	15.7	16.5	15.7	14.6	13.4	11.5	9.6	8.4
74°	11.9	13.1	13.8	14.6	15.4	14.6	13.8	12.7	10.8	8.8	7.7
74.5°	11.1	11.9	12.7	13.8	14.6	13.8	12.7	11.9	10.0	8.1	7.3
75°	10.4	11.1	11.9	12.7	13.4	12.7	11.9	11.1	9.6	7.7	6.5
75.5°	9.6	10.4	11.1	11.9	12.7	11.9	11.1	10.4	8.8	7.3	6.1
76°	9.2	10.0	10.4	11.1	11.9	11.1	10.4	9.6	8.1	6.5	5.8
76.5°	8.4	9.2	9.6	10.4	11.1	10.4	9.6	8.8	7.7	6.1	5.4
77°	8.1	8.4	9.2	9.6	10.4	9.6	9.2	8.4	7.3	5.8	5.0
77.5°	7.3	8.1	8.4	9.2	9.6	9.2	8.4	7.7	6.5	5.4	4.6
78°	6.9	7.7	8.1	8.4	8.8	8.4	7.7	7.3	6.1	5.0	4.2
78.5°	6.5	6.9	7.3	8.1	8.4	8.1	7.3	6.5	5.8	4.6	3.8
79°	5.8	6.5	6.9	7.3	7.7	7.3	6.9	6.1	5.4	4.2	3.5
79.5°	5.4	6.1	6.5	6.9	7.3	6.9	6.1	5.8	5.0	3.8	3.5
80°	5.0	5.4	5.8	6.5	6.9	6.5	5.8	5.4	4.6	3.5	3.1
80.5°	4.6	5.0	5.4	6.1	6.1	6.1	5.4	5.0	4.2	3.1	2.7
81°	4.2	4.6	5.0	5.8	5.8	5.4	5.0	4.6	3.8	2.7	2.3
81.5°	3.8	4.2	4.6	5.4	5.4	5.0	4.6	4.2	3.5	2.3	2.3
82°	3.1	3.8	4.2	5.0	5.0	4.6	4.2	3.8	3.1	1.9	1.9
82.5°	2.7	3.5	4.2	4.6	4.6	4.6	3.8	3.5	2.3	1.5	1.9
83°	2.3	3.1	3.8	4.2	4.2	4.2	3.8	3.1	1.9	1.5	1.5
83.5°	1.5	2.7	3.5	3.8	3.8	3.8	3.5	2.7	1.5	1.2	1.5
84°	1.2	2.3	3.1	3.5	3.8	3.5	3.1	2.3	1.2	0.8	1.2
84.5°	0.8	1.9	2.7	3.1	3.5	3.1	2.7	1.9	0.8	0.8	0.8
85°	0.8	1.5	2.7	3.1	3.1	3.1	2.7	1.5	0.4	0.8	0.8
85.5°	0.4	1.5	2.3	2.7	2.7	2.7	2.3	1.5	0.4	0.4	0.4
86°	0.4	1.2	2.3	2.3	2.7	2.3	1.9	1.2	0.4	0.4	0.4
86.5°	0.4	1.2	1.9	2.3	2.3	2.3	1.9	1.2	0.4	0.4	0.0
87°	0.4	1.2	1.5	1.9	1.9	1.9	1.5	0.8	0.0	0.0	0.0
87.5°	0.0	0.8	1.5	1.5	1.9	1.5	1.2	0.8	0.0	0.0	0.0
88°	0.0	0.4	1.2	1.5	1.5	1.5	1.2	0.4	0.0	0.0	0.0
88.5°	0.0	0.4	0.8	1.2	1.2	1.2	0.8	0.4	0.0	0.0	0.0



TEST NUMBER: P776240

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-2700K

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	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.4



TEST NUMBER: P776240

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2511.3	2511.3	2511.3	2511.3	2511.3	2511.3
0.5°	2508.2	2507.0	2507.0	2508.6	2510.1	2512.8
1°	2504.7	2503.6	2504.3	2506.6	2509.7	2513.2
1.5°	2500.9	2499.7	2500.9	2504.3	2508.9	2513.6
2°	2496.7	2495.5	2497.4	2502.0	2507.4	2513.6
2.5°	2492.4	2491.3	2493.6	2499.0	2505.9	2513.2
3°	2487.4	2486.3	2489.7	2495.9	2504.0	2512.4
3.5°	2482.1	2481.3	2485.1	2492.4	2501.7	2511.3
4°	2476.7	2475.5	2480.5	2488.6	2499.0	2510.1
4.5°	2470.9	2469.8	2475.2	2484.4	2496.3	2508.6
5°	2464.8	2463.6	2469.8	2480.1	2493.2	2506.6
5.5°	2458.3	2457.1	2464.0	2475.5	2489.4	2504.3
6°	2451.3	2450.6	2457.9	2470.5	2485.5	2501.7
6.5°	2444.4	2443.7	2451.3	2465.2	2481.3	2498.6
7°	2437.1	2436.0	2444.4	2459.0	2477.1	2495.9
7.5°	2429.5	2428.3	2437.5	2452.9	2472.1	2492.1
8°	2421.4	2419.9	2429.8	2446.4	2467.5	2488.2
8.5°	2413.0	2411.8	2422.2	2439.8	2462.1	2484.0
9°	2404.5	2403.0	2413.7	2432.9	2456.3	2479.8
9.5°	2395.7	2393.8	2405.3	2425.2	2449.8	2474.8
10°	2386.5	2384.2	2396.4	2417.6	2443.7	2469.8
10.5°	2376.9	2374.6	2387.2	2409.9	2437.1	2464.4
11°	2366.9	2364.6	2378.0	2401.8	2430.2	2458.6
11.5°	2356.5	2354.2	2368.0	2393.0	2422.9	2452.5
12°	2346.1	2343.5	2358.0	2383.8	2415.3	2446.4
12.5°	2335.0	2331.9	2347.3	2374.2	2406.8	2439.4
13°	2323.9	2320.8	2336.2	2365.0	2398.7	2432.5
13.5°	2312.3	2308.9	2325.0	2354.6	2390.3	2424.9
14°	2300.4	2296.6	2313.5	2344.2	2381.5	2417.2
14.5°	2288.2	2284.3	2301.2	2333.5	2371.9	2409.1
15°	2275.5	2270.9	2288.9	2322.7	2362.3	2401.0
15.5°	2262.8	2257.4	2275.9	2311.2	2351.9	2392.2
16°	2249.4	2244.0	2263.2	2299.3	2341.5	2383.0
16.5°	2235.6	2230.2	2249.4	2287.4	2331.2	2373.4
17°	2221.7	2216.0	2235.9	2275.1	2320.4	2363.8
17.5°	2207.5	2201.4	2221.7	2262.4	2308.5	2353.4
18°	2193.3	2186.4	2207.5	2249.0	2297.0	2343.1
18.5°	2178.3	2171.0	2192.5	2235.6	2284.7	2332.3
19°	2163.4	2155.7	2177.6	2221.7	2272.4	2321.2
19.5°	2147.6	2140.3	2162.6	2207.9	2259.7	2309.7
20°	2131.9	2124.2	2147.2	2193.3	2246.7	2297.8
20.5°	2116.1	2107.7	2131.5	2178.7	2233.2	2285.5
21°	2100.0	2091.2	2115.0	2163.7	2219.4	2272.8

TEST NUMBER: P776240

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2050.1	2040.5	2066.2	2117.3	2176.8	2232.9
23°	2032.8	2023.2	2048.9	2101.5	2161.8	2219.4
23.5°	2015.9	2005.9	2032.4	2085.4	2146.9	2204.8
24°	1998.2	1988.3	2015.1	2068.5	2131.1	2190.2
24.5°	1980.6	1970.6	1997.9	2052.0	2115.7	2175.3
25°	1962.9	1952.6	1979.8	2035.1	2099.6	2159.9
25.5°	1944.5	1934.5	1962.5	2018.2	2083.5	2144.5
26°	1926.4	1916.8	1944.5	2000.9	2067.4	2128.8
26.5°	1908.0	1898.4	1926.8	1983.7	2050.9	2112.7
27°	1889.6	1880.4	1908.8	1966.0	2034.0	2096.9
27.5°	1871.2	1861.6	1890.7	1948.3	2017.1	2080.0
28°	1852.3	1842.7	1872.3	1930.3	1999.4	2063.1
28.5°	1833.1	1823.9	1853.5	1912.2	1982.1	2046.2
29°	1814.7	1805.5	1835.4	1893.8	1964.1	2029.0
29.5°	1795.5	1786.3	1816.6	1875.4	1946.4	2011.3
30°	1775.9	1766.7	1797.8	1856.9	1928.4	1993.6
30.5°	1756.0	1747.1	1778.6	1837.7	1909.5	1976.0
31°	1736.0	1727.5	1758.6	1818.9	1890.7	1957.5
31.5°	1716.0	1707.6	1739.1	1799.3	1872.3	1939.5
32°	1695.3	1687.6	1719.5	1779.8	1853.1	1920.7
32.5°	1675.3	1667.3	1699.5	1759.8	1833.9	1902.3
33°	1654.6	1646.5	1679.2	1740.2	1813.6	1882.3
33.5°	1633.8	1626.6	1659.2	1719.9	1793.6	1863.5
34°	1612.7	1605.4	1638.8	1699.5	1773.6	1843.1
34.5°	1591.2	1583.9	1617.3	1678.4	1752.5	1823.5
35°	1569.0	1562.0	1595.8	1658.0	1732.1	1802.4
35.5°	1547.1	1539.8	1574.3	1636.5	1711.0	1783.2
36°	1524.4	1515.6	1552.1	1615.0	1689.9	1762.1
36.5°	1498.7	1490.2	1527.9	1591.6	1668.4	1741.4
37°	1471.0	1462.2	1501.0	1568.6	1645.4	1719.1
37.5°	1442.6	1432.3	1473.0	1542.8	1621.9	1698.7
38°	1412.3	1401.5	1443.0	1515.6	1598.1	1675.3
38.5°	1381.6	1370.1	1412.3	1487.2	1573.6	1652.3
39°	1350.1	1338.6	1381.2	1458.4	1547.5	1628.1
39.5°	1317.8	1306.3	1349.3	1429.2	1519.8	1605.1
40°	1284.4	1272.9	1317.8	1398.5	1490.2	1579.7
40.5°	1252.2	1239.5	1285.2	1367.4	1461.1	1553.2
41°	1218.0	1206.5	1253.7	1335.9	1430.7	1525.9
41.5°	1184.6	1173.5	1221.1	1303.2	1400.0	1497.5
42°	1150.4	1140.8	1188.8	1270.6	1368.9	1468.4
42.5°	1117.0	1107.4	1156.6	1238.0	1335.9	1437.2
43°	1082.1	1074.0	1124.7	1204.2	1302.9	1404.2
43.5°	1048.7	1041.4	1092.0	1170.0	1268.7	1370.1



TEST NUMBER: P776240

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	947.7	942.7	993.0	1068.2	1164.6	1264.8
45.5°	914.3	910.0	960.0	1032.9	1129.3	1228.4
46°	881.2	877.4	925.8	1000.3	1093.6	1191.9
46.5°	849.0	844.8	891.6	965.7	1056.7	1156.2
47°	815.6	812.5	859.4	931.5	1020.6	1120.1
47.5°	783.7	780.6	825.6	896.6	984.5	1084.4
48°	752.6	749.2	793.7	863.6	948.8	1048.3
48.5°	721.1	718.0	761.1	828.6	912.3	1012.9
49°	690.0	687.7	728.8	796.0	877.4	978.4
49.5°	658.9	657.0	697.7	762.2	842.5	943.1
50°	629.0	627.0	666.2	729.2	807.1	909.3
50.5°	599.0	597.1	635.1	694.2	772.6	873.9
51°	570.2	568.3	604.0	663.9	739.2	840.5
51.5°	542.2	539.9	574.4	631.3	706.1	806.7
52°	513.4	511.8	544.9	599.8	673.9	774.1
52.5°	486.1	484.6	516.1	566.8	641.6	740.7
53°	459.2	457.3	487.3	538.0	610.1	708.4
53.5°	433.1	430.8	458.9	508.0	579.8	676.2
54°	407.8	405.1	431.2	477.7	549.5	644.7
54.5°	382.8	380.1	405.1	449.3	520.7	613.2
55°	360.6	355.2	379.0	421.6	491.9	582.9
55.5°	337.9	331.4	352.9	394.7	463.9	552.2
56°	315.6	307.6	328.3	368.6	436.6	523.4
56.5°	293.0	284.9	304.1	342.9	410.5	493.8
57°	270.3	263.0	281.1	318.3	384.4	466.2
57.5°	250.4	241.5	258.4	295.3	359.0	438.1
58°	231.2	221.2	236.5	272.6	334.4	411.2
58.5°	212.3	201.6	216.2	251.1	311.0	385.1
59°	195.1	183.2	196.2	230.0	288.0	359.8
59.5°	177.4	165.5	177.8	210.4	265.7	335.2
60°	160.9	148.6	160.1	192.0	244.2	310.6
60.5°	145.1	132.9	143.2	173.6	223.5	287.2
61°	130.9	119.4	129.4	156.3	203.5	264.6
61.5°	116.3	106.0	116.0	140.5	184.7	243.1
62°	103.3	92.9	102.5	127.5	167.0	222.3
62.5°	91.4	79.5	89.1	114.0	149.4	201.6
63°	80.3	68.7	75.6	101.0	132.9	181.6
63.5°	69.1	59.5	65.3	87.9	119.0	162.0
64°	59.5	50.7	56.1	74.9	105.6	142.8
64.5°	50.7	43.8	48.4	64.5	92.2	126.3
65°	45.3	37.2	41.5	55.3	78.7	110.2
65.5°	39.9	31.9	35.7	46.8	67.6	94.1
66°	34.6	26.9	30.3	39.6	57.2	77.9



TEST NUMBER: P776240

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-2700K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	18.8	18.0	19.6	23.4	33.4	40.3
68°	16.9	16.9	17.7	20.4	28.0	32.3
68.5°	15.7	15.7	16.5	18.0	23.4	26.5
69°	15.0	14.6	15.4	16.9	20.4	23.0
69.5°	13.8	13.8	14.6	15.7	18.4	21.1
70°	13.1	13.1	13.8	15.0	17.3	20.0
70.5°	12.3	12.3	12.7	13.8	16.1	18.8
71°	11.1	11.1	11.9	13.1	15.0	17.7
71.5°	10.4	10.4	11.1	12.3	14.2	16.5
72°	10.0	10.0	10.4	11.5	13.4	15.4
72.5°	9.2	9.2	9.6	10.8	12.3	14.6
73°	8.4	8.4	8.8	10.0	11.5	13.8
73.5°	8.1	8.1	8.4	9.2	10.8	12.7
74°	7.3	7.3	7.7	8.4	10.0	11.9
74.5°	6.9	6.9	7.3	8.1	9.2	11.1
75°	6.5	6.5	6.9	7.7	8.8	10.4
75.5°	6.1	6.1	6.5	6.9	8.1	9.6
76°	5.8	5.8	5.8	6.5	7.7	9.2
76.5°	5.4	5.4	5.4	6.1	6.9	8.4
77°	5.0	5.0	5.0	5.8	6.5	8.1
77.5°	4.6	4.6	4.6	5.4	6.1	7.3
78°	4.2	4.2	4.6	5.0	5.8	6.9
78.5°	3.8	3.8	4.2	4.6	5.0	6.5
79°	3.5	3.5	3.8	4.2	4.6	5.8
79.5°	3.5	3.5	3.5	3.8	4.2	5.4
80°	3.1	3.1	3.1	3.5	3.8	5.0
80.5°	2.7	2.7	3.1	3.1	3.5	4.6
81°	2.7	2.7	2.7	2.7	3.1	4.2
81.5°	2.3	2.3	2.3	2.7	2.7	3.8
82°	1.9	1.9	2.3	2.3	2.3	3.1
82.5°	1.9	1.9	1.9	1.9	1.9	2.7
83°	1.5	1.5	1.5	1.9	1.5	2.3
83.5°	1.5	1.2	1.5	1.5	1.5	1.5
84°	1.2	1.2	1.2	1.5	1.2	1.2
84.5°	0.8	0.8	0.8	1.2	1.2	0.8
85°	0.8	0.4	0.8	0.8	0.8	0.8
85.5°	0.4	0.4	0.4	0.8	0.8	0.4
86°	0.0	0.0	0.0	0.4	0.4	0.4
86.5°	0.0	0.0	0.0	0.0	0.4	0.4
87°	0.0	0.0	0.0	0.0	0.0	0.4
87.5°	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.4	0.0	0.0	0.0	0.0
88.5°	0.4	0.4	0.4	0.0	0.0	0.0



TEST NUMBER: P776240

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRH-4000lm-2700K

CANDELA DISTRIBUTION (continued):

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



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Scaled Data Report





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

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21.5°	2259.7	2302.4	2328.9	2338.8	2340.8	2312.3	2265.9	2209.4	2157.6	2122.7	2100.4
22°	2246.7	2289.7	2317.0	2327.3	2328.9	2300.4	2252.8	2194.8	2142.2	2106.9	2084.3



44°	1335.5	1416.9	1468.4	1494.5	1507.1	1459.5	1379.3	1281.7	1181.5	1100.1	1044.8
44.5°	1300.9	1385.0	1438.0	1464.1	1477.2	1427.7	1347.0	1249.5	1149.3	1067.5	1010.6



66.5°	61.8	100.2	125.9	135.9	144.4	127.9	100.6	73.0	48.0	39.6	33.0
67°	49.9	84.9	111.0	121.3	127.1	112.1	87.9	62.2	42.6	34.6	26.9



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

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21.5°	2083.1	2074.7	2098.9	2148.8	2205.6	2259.7
22°	2066.6	2057.4	2082.7	2133.0	2191.0	2246.7



44°	1014.9	1008.7	1059.0	1136.2	1234.9	1335.5
44.5°	981.5	975.3	1025.2	1101.3	1200.7	1300.9

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66.5°	29.6	23.4	25.7	33.0	48.4	61.8
67°	24.2	20.0	22.3	27.6	40.3	49.9

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89°	0.4	0.4	0.0	0.4	0.0	0.0
89.5°	0.4	0.0	0.0	0.4	0.0	0.0

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Scaled Data Report



(END OF REPORT)