

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: P776300

Luminaire Tested: HCDJBL3040CSD-HCD4TRMB-4000lm-2700K

Issue Date: 2/7/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776300  
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: HCDJBL3040CSD-HCD4TRMB-4000lm-2700K  
Description: 4 INCH ROUND MEDIUM MATTE BLACK TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2432.2 lumens  
Efficiency: N/A  
Efficacy: 63.2 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

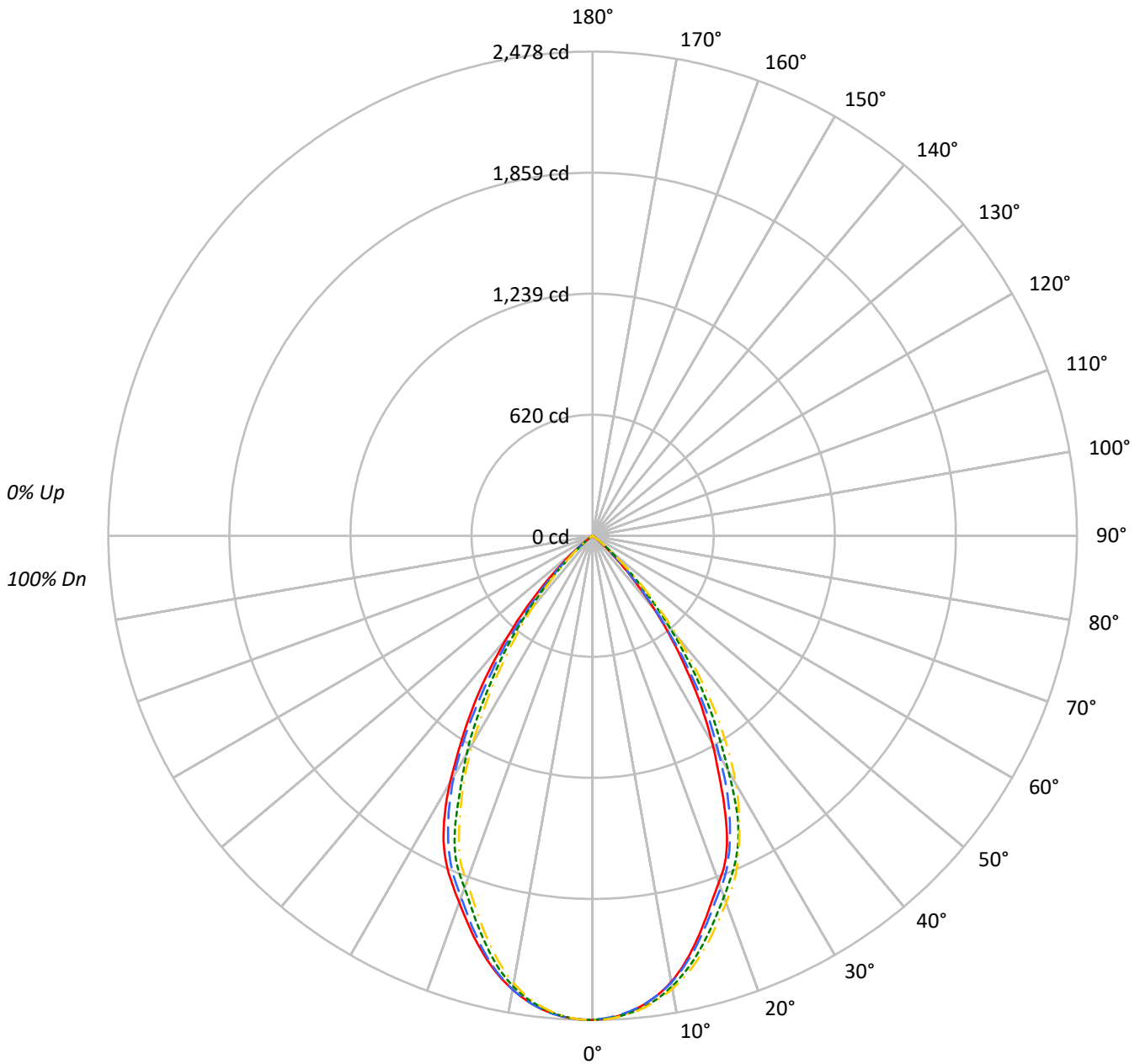
Input Watts (W): 38.5  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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	100	100	100	100	100		
	1	113	111	108	106	111	108	106	104	104	103	101	101	99	98	97	96	95	93	93	93	93	93	93		
	2	108	103	98	95	105	101	97	94	98	95	92	95	92	90	92	90	88	86	86	86	86	86	86		
	3	102	95	90	86	100	94	89	85	91	87	84	89	86	83	87	84	82	80	80	80	80	80	80		
	4	97	89	83	79	95	88	82	78	85	81	77	83	80	76	82	78	76	74	74	74	74	74	74		
	5	91	83	77	72	90	82	76	72	80	75	71	78	74	71	77	73	70	69	69	69	69	69	69		
	6	87	77	71	67	85	77	71	67	75	70	66	74	69	66	72	68	65	64	64	64	64	64	64		
	7	82	72	66	62	81	72	66	62	70	65	61	69	65	61	68	64	61	59	59	59	59	59	59		
	8	78	68	62	58	77	67	62	57	66	61	57	65	60	57	64	60	57	55	55	55	55	55	55		
	9	74	64	58	54	73	63	58	54	62	57	53	62	57	53	61	56	53	52	52	52	52	52	52		
	10	70	60	54	50	69	60	54	50	59	54	50	58	53	50	57	53	50	48	48	48	48	48	48		

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	311793	311793	311793	311793
5°	307691	308764	309687	309106
10°	296182	299134	301383	299223
15°	275054	282650	286454	279458
20°	252987	263179	267344	256697
25°	224661	243963	248767	231591
30°	177783	201732	212049	187330
35°	129237	153557	163528	137672
40°	80894	101413	112519	88911
45°	36575	54355	62613	41772
50°	10612	16622	21654	12491
55°	1689	1689	2282	2106
60°	680	680	780	680
65°	447	447	447	447
70°	294	442	442	442
75°	194	389	194	389
80°	0	290	290	290
85°	0	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 180°  
 Vertical Angle: 45°  
 Luminance: 62613 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	230.0	9.5
10°-20°	603.3	24.8
20°-30°	769.9	31.7
30°-40°	588.7	24.2
40°-50°	220.0	9.0
50°-60°	17.9	0.7
60°-70°	1.7	0.1
70°-80°	0.7	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°	1603.3	65.9
0°-40°	2191.9	90.1
0°-60°	2429.9	99.9
0°-90°	2432.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2432.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	2478	2478	2478	2478	2478	
5°	2436	2444	2451	2447	2436	229
15°	2111	2169	2199	2145	2111	591
25°	1618	1757	1792	1668	1618	728
35°	841	1000	1064	896	841	524
45°	206	305	352	235	206	172
55°	8	8	10	10	8	12
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°	2477.5	2477.5	2477.5	2477.5	2477.5	2477.5	2477.5	2477.5	2477.5	2477.5	2477.5
0.5°	2476.7	2474.8	2474.8	2474.8	2476.7	2477.1	2478.3	2479.0	2477.9	2476.7	2476.7
1°	2475.2	2473.3	2472.9	2473.3	2475.2	2476.0	2477.1	2477.9	2477.5	2476.7	2476.3
1.5°	2472.9	2470.6	2470.2	2470.6	2473.3	2474.4	2475.6	2476.7	2476.0	2475.6	2476.0
2°	2469.8	2467.5	2466.7	2467.5	2471.0	2472.1	2473.3	2474.4	2474.4	2474.0	2474.4
2.5°	2466.0	2463.3	2462.9	2464.1	2467.9	2469.1	2470.2	2471.7	2472.1	2471.7	2472.1
3°	2461.4	2458.7	2458.3	2459.8	2464.1	2465.6	2466.7	2468.3	2469.1	2469.1	2469.4
3.5°	2456.0	2452.9	2453.3	2455.2	2459.8	2461.4	2462.9	2464.4	2465.6	2466.0	2466.0
4°	2449.8	2447.2	2447.2	2449.5	2455.2	2456.8	2457.9	2459.8	2461.4	2462.1	2462.1
4.5°	2442.9	2440.2	2440.6	2443.7	2450.2	2451.8	2452.9	2454.8	2456.8	2457.5	2457.5
5°	2435.6	2432.6	2432.9	2436.8	2444.1	2445.6	2446.8	2449.1	2451.4	2452.5	2452.2
5.5°	2427.2	2423.7	2425.3	2429.1	2437.2	2438.7	2440.2	2442.5	2445.2	2446.4	2445.6
6°	2418.3	2414.9	2416.4	2421.0	2429.9	2431.4	2432.9	2435.6	2438.7	2439.9	2438.7
6.5°	2408.7	2405.7	2407.6	2412.2	2421.4	2423.7	2425.3	2428.0	2431.4	2432.6	2431.4
7°	2398.4	2395.3	2397.6	2402.2	2412.2	2414.9	2416.8	2419.9	2423.0	2424.5	2423.3
7.5°	2387.2	2384.5	2386.5	2391.5	2402.2	2405.3	2408.0	2410.7	2413.7	2415.7	2414.5
8°	2375.3	2373.0	2374.9	2380.3	2391.5	2394.9	2398.4	2401.4	2404.5	2405.7	2404.5
8.5°	2362.3	2360.7	2363.0	2368.0	2379.9	2383.8	2388.4	2391.1	2393.8	2395.7	2394.1
9°	2348.4	2347.3	2350.0	2355.0	2367.6	2372.6	2377.6	2380.3	2383.0	2384.2	2383.0
9.5°	2333.1	2333.1	2336.1	2341.5	2354.6	2360.3	2366.1	2369.6	2371.1	2372.3	2371.1
10°	2317.7	2317.7	2321.2	2326.9	2340.8	2347.7	2353.8	2357.3	2358.4	2359.2	2358.0
10.5°	2301.6	2301.6	2305.4	2312.0	2327.3	2333.8	2340.8	2344.6	2345.4	2345.8	2344.2
11°	2283.1	2283.9	2288.9	2295.4	2312.0	2319.6	2327.3	2331.2	2331.9	2331.5	2329.6
11.5°	2264.3	2265.9	2271.6	2278.5	2296.2	2305.0	2313.5	2316.9	2316.9	2316.6	2313.9
12°	2244.3	2246.7	2253.2	2260.9	2280.5	2289.7	2298.5	2302.3	2302.3	2300.8	2298.1
12.5°	2223.6	2226.3	2233.6	2242.8	2263.2	2273.2	2282.8	2287.0	2286.6	2284.3	2281.2
13°	2202.1	2205.6	2214.0	2224.0	2245.5	2256.3	2267.0	2271.2	2270.1	2267.0	2262.4
13.5°	2179.8	2184.4	2193.3	2204.0	2227.8	2239.0	2249.7	2254.0	2253.2	2249.7	2244.3
14°	2157.2	2162.5	2172.9	2184.4	2208.2	2221.3	2232.1	2237.0	2235.5	2230.9	2224.8
14.5°	2134.1	2140.3	2151.4	2164.1	2189.0	2202.9	2213.6	2218.6	2217.1	2212.1	2204.4
15°	2111.1	2117.6	2129.5	2142.9	2169.4	2183.7	2195.2	2200.2	2198.6	2192.5	2184.0
15.5°	2087.2	2094.9	2107.2	2122.2	2149.9	2164.1	2176.4	2181.0	2179.4	2172.9	2162.9
16°	2063.4	2071.9	2085.7	2100.7	2129.1	2144.9	2157.2	2161.8	2159.8	2152.5	2141.8
16.5°	2040.4	2049.6	2063.8	2079.6	2108.8	2124.9	2136.8	2142.9	2140.3	2132.2	2120.3
17°	2017.3	2026.6	2041.5	2058.4	2088.0	2104.5	2117.2	2122.6	2119.9	2111.1	2098.8
17.5°	1994.3	2003.9	2019.6	2037.3	2066.9	2083.8	2096.5	2101.5	2099.2	2089.9	2076.5
18°	1971.2	1981.6	1997.7	2015.8	2046.1	2063.4	2076.1	2081.9	2078.4	2068.8	2055.0
18.5°	1949.0	1960.5	1976.2	1994.7	2025.0	2043.1	2056.1	2061.1	2057.3	2047.3	2032.7
19°	1928.2	1940.1	1956.7	1974.3	2004.7	2023.1	2035.8	2040.8	2036.5	2026.2	2010.8
19.5°	1908.6	1920.9	1936.7	1954.7	1985.1	2003.1	2016.6	2021.2	2017.0	2005.0	1989.3
20°	1889.0	1901.7	1917.5	1935.5	1965.1	1983.5	1998.1	2002.0	1996.2	1985.1	1968.9
20.5°	1869.8	1882.1	1898.3	1915.9	1945.9	1964.7	1978.9	1983.2	1977.4	1965.1	1949.0
21°	1850.3	1862.9	1878.3	1896.3	1926.7	1945.9	1959.3	1964.3	1958.2	1945.9	1929.4



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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°	1781.5	1793.4	1808.4	1832.2	1868.3	1887.1	1899.4	1905.2	1900.6	1887.9	1869.5
23°	1753.8	1766.1	1781.9	1809.9	1847.9	1866.0	1876.8	1883.7	1881.0	1867.5	1847.6
23.5°	1723.9	1736.9	1754.2	1784.6	1826.8	1843.3	1851.8	1859.5	1859.9	1846.8	1824.1
24°	1690.5	1704.3	1725.0	1758.1	1805.3	1819.1	1825.3	1834.9	1838.0	1825.3	1799.5
24.5°	1655.1	1669.0	1693.9	1730.0	1781.9	1794.6	1798.8	1808.4	1815.3	1802.2	1772.7
25°	1617.9	1631.3	1663.6	1701.6	1756.9	1768.1	1770.7	1781.1	1791.5	1778.8	1745.0
25.5°	1578.7	1592.9	1631.7	1670.5	1730.8	1740.0	1740.8	1752.3	1766.1	1753.5	1716.2
26°	1538.0	1553.7	1599.8	1640.5	1702.4	1710.4	1711.6	1723.1	1738.9	1727.0	1687.0
26.5°	1496.5	1514.5	1565.2	1609.0	1671.3	1679.7	1682.8	1693.5	1709.7	1698.1	1655.9
27°	1454.6	1476.1	1530.3	1576.4	1637.8	1648.6	1654.0	1664.0	1678.6	1666.6	1624.8
27.5°	1414.7	1438.1	1493.8	1543.0	1601.0	1616.7	1624.8	1634.0	1646.7	1634.0	1594.1
28°	1374.3	1402.0	1455.4	1507.2	1562.2	1584.1	1594.8	1604.0	1611.3	1599.0	1561.0
28.5°	1335.2	1367.0	1416.2	1469.6	1519.9	1549.5	1564.9	1573.3	1575.6	1563.3	1527.6
29°	1297.5	1332.5	1376.6	1431.2	1476.9	1514.5	1534.1	1542.2	1539.1	1524.1	1492.6
29.5°	1260.3	1297.5	1335.9	1390.5	1432.7	1478.1	1500.7	1508.8	1499.2	1484.2	1455.8
30°	1223.4	1261.8	1295.6	1347.8	1388.2	1439.6	1466.1	1475.4	1459.2	1442.7	1416.6
30.5°	1186.9	1224.9	1256.8	1303.3	1345.9	1400.1	1429.7	1439.3	1416.6	1399.3	1377.4
31°	1149.6	1186.9	1217.2	1259.9	1304.8	1359.4	1393.9	1403.9	1375.1	1355.9	1336.7
31.5°	1112.4	1147.7	1179.2	1214.2	1265.3	1318.3	1356.7	1365.5	1333.6	1312.1	1296.0
32°	1074.7	1108.2	1140.0	1169.6	1228.0	1276.4	1320.2	1327.1	1294.1	1269.9	1253.0
32.5°	1037.1	1066.3	1101.2	1126.2	1190.0	1235.3	1283.3	1286.8	1254.1	1228.8	1211.9
33°	997.9	1025.2	1061.7	1081.7	1153.9	1194.6	1245.7	1247.2	1216.1	1188.0	1168.1
33.5°	958.0	984.1	1021.7	1037.9	1115.5	1154.2	1206.5	1207.3	1176.9	1148.1	1123.9
34°	918.4	944.9	980.6	995.2	1077.0	1115.8	1167.7	1167.3	1140.4	1108.5	1079.0
34.5°	880.0	904.2	939.9	953.7	1037.5	1078.2	1127.4	1125.8	1102.0	1070.1	1036.3
35°	841.2	866.2	899.2	912.6	999.5	1042.1	1087.0	1085.9	1064.4	1032.1	992.2
35.5°	804.7	829.7	857.3	872.7	957.2	1004.4	1044.4	1045.5	1026.0	993.7	950.7
36°	768.6	792.8	815.5	833.9	916.5	966.4	1002.5	1005.2	989.1	954.9	910.3
36.5°	733.3	756.7	774.7	795.9	876.5	929.2	959.9	964.5	949.5	915.3	871.2
37°	698.3	719.8	732.1	758.2	837.4	891.9	918.0	923.0	910.3	875.0	831.6
37.5°	663.7	684.1	691.0	721.4	798.2	853.1	875.8	883.8	870.8	835.1	794.7
38°	629.2	647.2	650.7	684.1	761.3	813.9	836.6	845.0	832.0	795.1	757.1
38.5°	594.6	610.7	613.0	648.0	724.4	774.4	796.3	807.0	794.3	755.9	719.8
39°	560.8	575.0	576.9	612.7	689.5	736.0	756.7	769.0	757.5	720.2	682.9
39.5°	525.8	537.8	540.8	579.6	652.6	697.5	717.5	731.3	720.6	681.4	646.8
40°	492.4	502.0	505.5	545.1	617.3	660.7	678.3	692.9	684.9	645.7	610.7
40.5°	459.0	467.1	473.2	512.8	582.7	624.2	639.5	655.7	648.8	611.5	575.0
41°	426.4	433.3	441.0	480.9	548.9	589.2	602.3	618.0	615.3	579.2	538.9
41.5°	394.1	400.6	409.8	449.4	513.9	553.9	566.2	580.0	580.8	545.1	504.7
42°	364.5	368.4	379.5	417.5	479.8	520.1	530.5	543.5	545.1	513.6	470.5
42.5°	334.9	338.4	351.1	388.7	447.5	486.3	495.5	508.6	510.9	481.7	438.3
43°	307.3	309.2	322.7	359.9	416.4	452.5	461.3	474.4	477.8	452.1	407.2
43.5°	279.6	281.2	296.5	331.5	386.4	418.3	429.4	441.0	444.4	419.8	377.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	205.5	203.6	223.2	252.7	305.4	324.6	339.9	349.5	351.8	336.5	296.5
45.5°	183.2	180.9	202.0	228.9	278.5	293.8	311.1	320.7	323.0	309.2	269.6
46°	162.5	160.2	181.7	206.3	251.6	263.1	282.3	291.9	294.2	281.9	245.4
46.5°	142.5	140.6	162.9	185.5	226.6	236.2	253.9	263.5	265.4	255.0	222.8
47°	128.3	126.8	144.4	165.6	202.4	210.9	228.2	236.6	238.5	230.1	200.9
47.5°	114.5	112.5	130.2	146.3	179.4	187.1	203.6	211.6	214.3	207.0	180.5
48°	100.6	98.3	116.0	128.3	157.5	165.2	181.3	187.8	190.9	185.1	161.7
48.5°	86.8	84.5	101.8	112.5	137.1	144.4	159.8	165.9	169.0	162.9	144.0
49°	73.0	70.3	87.6	99.1	117.9	126.0	139.4	144.8	147.9	142.9	127.1
49.5°	63.4	61.1	73.4	86.8	100.3	108.7	120.6	125.6	128.7	124.5	111.8
50°	54.2	52.2	62.2	74.5	84.9	93.0	102.9	108.3	110.6	107.2	97.6
50.5°	46.1	44.6	52.2	62.2	71.1	78.7	87.2	92.6	94.5	91.8	84.1
51°	38.8	37.3	43.0	49.9	58.8	65.7	72.6	78.0	79.5	77.2	72.2
51.5°	31.9	30.7	35.0	40.7	51.1	54.2	59.9	64.5	66.1	64.9	61.1
52°	26.1	25.0	27.7	32.3	43.4	46.1	51.1	53.0	54.2	53.8	51.1
52.5°	20.7	19.6	21.5	24.6	35.7	38.4	42.3	45.3	46.1	46.1	43.8
53°	15.7	15.0	16.1	18.4	28.0	30.3	33.8	37.3	38.4	38.0	36.5
53.5°	13.8	13.1	14.2	13.4	20.4	22.3	25.0	29.6	30.3	30.3	29.2
54°	11.9	10.8	11.9	11.1	12.7	14.6	16.5	21.5	22.3	22.7	21.5
54.5°	10.0	8.5	10.0	9.6	9.2	10.4	11.5	13.8	14.6	14.6	14.6
55°	7.7	6.5	7.7	7.7	7.7	8.1	8.8	10.0	10.4	10.8	10.8
55.5°	5.8	5.8	5.8	6.1	6.5	6.9	7.3	7.7	8.1	8.5	8.1
56°	5.4	5.0	5.0	5.4	5.8	6.1	6.1	6.5	6.9	6.9	6.9
56.5°	4.6	4.6	4.6	4.6	5.0	5.4	5.8	5.8	6.1	6.1	6.1
57°	4.2	4.2	4.2	4.2	4.6	4.6	5.0	5.4	5.4	5.4	5.4
57.5°	3.8	3.8	3.8	3.8	4.2	4.2	4.6	4.6	5.0	5.0	5.0
58°	3.5	3.5	3.5	3.5	3.8	3.8	3.8	4.2	4.2	4.2	4.2
58.5°	3.1	3.1	3.1	3.1	3.5	3.5	3.5	3.8	3.8	3.8	3.8
59°	3.1	3.1	3.1	3.1	3.1	3.1	3.5	3.5	3.5	3.5	3.5
59.5°	2.7	2.7	2.7	2.7	2.7	3.1	3.1	3.1	3.1	3.1	3.1
60°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.1	3.1	3.1	3.1
60.5°	2.3	2.3	2.3	2.3	2.7	2.7	2.7	2.7	2.7	2.7	2.7
61°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.7	2.7	2.7	2.7
61.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
62°	1.9	1.9	1.9	1.9	1.9	2.3	2.3	2.3	2.3	2.3	2.3
62.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.3	2.3
63°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
63.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
64°	1.5	1.5	1.5	1.5	1.5	1.9	1.9	1.9	1.9	1.9	1.9
64.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.9
65°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
65.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
66°	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5





TEST NUMBER: P776300

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMB-4000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
68°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
68.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
69°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
69.5°	0.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
70°	0.8	0.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
70.5°	0.8	0.8	0.8	0.8	1.2	1.2	1.2	0.8	0.8	0.8	1.2
71°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.2
71.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
72°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
73°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
73.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
74°	0.4	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
74.5°	0.4	0.4	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
75°	0.4	0.4	0.4	0.8	0.8	0.8	0.8	0.4	0.4	0.4	0.8
75.5°	0.4	0.4	0.4	0.4	0.8	0.8	0.8	0.4	0.4	0.4	0.8
76°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
76.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
78°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
78.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
79°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
79.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80.5°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
81°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.4
81.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.4
82°	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.4
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: P776300

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMB-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776300

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMB-4000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2477.5	2477.5	2477.5	2477.5	2477.5	2477.5
0.5°	2476.7	2477.5	2477.9	2478.3	2478.3	2476.7
1°	2476.7	2477.1	2477.1	2477.5	2477.1	2475.2
1.5°	2476.0	2476.0	2476.0	2476.0	2475.2	2472.9
2°	2474.4	2474.0	2474.0	2473.7	2472.1	2469.8
2.5°	2472.1	2471.4	2471.0	2470.6	2468.7	2466.0
3°	2469.4	2467.9	2467.5	2466.7	2464.8	2461.4
3.5°	2465.6	2463.7	2463.3	2462.1	2459.4	2456.0
4°	2461.0	2458.7	2458.3	2456.8	2453.7	2449.8
4.5°	2456.0	2452.9	2452.2	2450.6	2447.5	2442.9
5°	2450.6	2446.8	2445.2	2443.3	2440.2	2435.6
5.5°	2444.1	2439.5	2437.6	2435.6	2431.4	2427.2
6°	2436.8	2431.4	2429.5	2426.8	2423.0	2418.3
6.5°	2429.1	2423.0	2420.7	2417.6	2413.4	2408.7
7°	2420.7	2413.7	2410.7	2407.2	2402.2	2398.4
7.5°	2411.4	2403.8	2399.9	2395.7	2390.7	2387.2
8°	2401.8	2393.0	2388.4	2383.4	2379.2	2375.3
8.5°	2391.1	2381.5	2376.1	2370.3	2365.7	2362.3
9°	2379.6	2369.2	2362.7	2356.1	2351.5	2348.4
9.5°	2367.3	2355.7	2348.4	2340.8	2335.4	2333.1
10°	2354.2	2341.5	2333.1	2325.0	2320.0	2317.7
10.5°	2340.0	2326.5	2316.6	2307.7	2303.1	2301.6
11°	2325.4	2310.4	2299.3	2289.7	2284.7	2283.1
11.5°	2309.6	2292.7	2280.8	2270.5	2265.1	2264.3
12°	2292.4	2274.7	2261.2	2250.1	2244.7	2244.3
12.5°	2274.7	2254.7	2240.5	2229.0	2223.6	2223.6
13°	2256.3	2234.0	2219.4	2207.5	2201.7	2202.1
13.5°	2236.3	2212.9	2197.1	2184.4	2179.8	2179.8
14°	2215.5	2191.0	2174.4	2161.4	2155.6	2157.2
14.5°	2194.4	2167.9	2151.0	2138.3	2132.2	2134.1
15°	2172.9	2144.9	2127.2	2114.5	2108.8	2111.1
15.5°	2150.6	2121.8	2103.4	2090.7	2084.9	2087.2
16°	2128.3	2098.0	2079.6	2065.7	2061.1	2063.4
16.5°	2105.7	2075.0	2055.8	2041.9	2037.3	2040.4
17°	2082.6	2051.5	2031.2	2017.7	2013.1	2017.3
17.5°	2059.6	2027.7	2007.4	1994.3	1989.7	1994.3
18°	2036.9	2003.9	1983.9	1970.1	1966.6	1971.2
18.5°	2014.3	1981.2	1960.1	1946.7	1943.6	1949.0
19°	1991.6	1958.2	1937.4	1924.4	1922.1	1928.2
19.5°	1970.1	1937.1	1917.1	1904.0	1901.3	1908.6
20°	1949.4	1916.7	1896.0	1884.1	1881.4	1889.0
20.5°	1929.4	1897.1	1876.4	1864.1	1862.2	1869.8
21°	1909.4	1877.5	1856.0	1843.7	1843.0	1850.3

TEST NUMBER: P776300

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMB-4000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1849.1	1816.5	1792.3	1776.9	1773.0	1781.5
23°	1825.3	1792.3	1766.1	1748.1	1744.2	1753.8
23.5°	1800.7	1765.7	1738.1	1717.0	1714.7	1723.9
24°	1773.8	1735.8	1705.8	1682.8	1681.2	1690.5
24.5°	1745.4	1703.1	1673.9	1647.4	1645.9	1655.1
25°	1715.0	1667.8	1638.6	1610.2	1609.4	1617.9
25.5°	1683.9	1629.8	1602.1	1573.7	1572.5	1578.7
26°	1650.9	1589.8	1562.9	1538.0	1533.4	1538.0
26.5°	1616.7	1548.0	1523.8	1501.9	1495.3	1496.5
27°	1581.8	1507.6	1481.9	1466.5	1456.5	1454.6
27.5°	1544.9	1467.7	1437.7	1428.9	1417.0	1414.7
28°	1507.2	1430.4	1395.1	1391.2	1377.8	1374.3
28.5°	1469.6	1393.9	1353.6	1352.1	1338.6	1335.2
29°	1430.8	1358.6	1313.7	1311.3	1297.9	1297.5
29.5°	1392.0	1324.4	1274.9	1269.1	1257.6	1260.3
30°	1354.4	1289.1	1236.4	1226.8	1216.1	1223.4
30.5°	1316.0	1252.6	1199.2	1183.1	1173.8	1186.9
31°	1278.7	1215.3	1161.9	1138.9	1132.4	1149.6
31.5°	1242.6	1175.8	1124.7	1097.0	1090.1	1112.4
32°	1205.7	1135.4	1086.6	1055.1	1050.2	1074.7
32.5°	1169.2	1094.7	1049.4	1014.0	1011.7	1037.1
33°	1132.7	1053.2	1011.0	974.5	973.7	997.9
33.5°	1096.2	1011.7	972.2	934.2	936.1	958.0
34°	1057.5	971.8	933.4	895.0	898.4	918.4
34.5°	1018.3	933.8	893.4	855.8	860.4	880.0
35°	977.2	896.1	854.6	816.6	822.4	841.2
35.5°	937.6	860.8	817.4	777.8	784.4	804.7
36°	893.8	826.6	780.1	740.9	745.9	768.6
36.5°	852.7	791.3	745.2	705.6	707.1	733.3
37°	810.5	756.7	709.4	670.7	669.9	698.3
37.5°	770.5	721.7	674.5	636.5	633.8	663.7
38°	730.2	685.3	639.9	602.7	598.8	629.2
38.5°	692.5	648.8	605.7	569.6	565.4	594.6
39°	654.1	613.0	573.1	538.1	533.9	560.8
39.5°	616.9	576.9	538.9	505.9	502.8	525.8
40°	579.6	541.2	506.3	475.9	472.5	492.4
40.5°	544.7	506.6	474.4	445.6	442.5	459.0
41°	508.9	474.0	442.9	417.1	414.5	426.4
41.5°	474.8	441.3	412.5	389.9	386.0	394.1
42°	441.3	410.6	383.0	364.5	359.1	364.5
42.5°	408.7	379.9	354.5	338.8	333.0	334.9
43°	377.2	350.3	327.3	315.0	308.4	307.3
43.5°	349.2	319.6	301.5	291.2	283.9	279.6



TEST NUMBER: P776300

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMB-4000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	265.8	234.7	229.7	226.2	218.6	205.5
45.5°	241.2	209.0	207.8	206.3	198.6	183.2
46°	218.2	185.1	187.4	187.8	180.5	162.5
46.5°	196.3	162.9	167.9	170.2	162.5	142.5
47°	175.9	143.3	149.0	152.9	145.6	128.3
47.5°	157.1	129.1	131.7	137.1	131.7	114.5
48°	139.0	114.8	118.3	124.1	118.3	100.6
48.5°	122.9	101.0	104.5	111.0	104.5	86.8
49°	107.9	87.2	91.0	97.9	90.6	73.0
49.5°	94.1	73.4	77.6	84.9	76.8	63.4
50°	81.4	63.8	66.5	71.8	66.1	54.2
50.5°	70.3	55.3	56.8	61.1	55.3	46.1
51°	59.9	47.2	48.4	51.5	46.5	38.8
51.5°	51.1	40.3	40.3	42.6	38.4	31.9
52°	44.2	33.8	33.0	34.6	30.7	26.1
52.5°	37.6	27.7	26.9	27.3	24.2	20.7
53°	30.7	22.3	21.1	20.7	18.4	15.7
53.5°	24.2	17.3	16.1	15.4	13.4	13.8
54°	17.3	13.1	13.8	13.1	11.5	11.9
54.5°	13.1	11.1	11.9	10.8	9.6	10.0
55°	10.0	9.6	10.0	8.5	7.7	7.7
55.5°	7.7	7.7	7.7	6.1	6.1	5.8
56°	6.9	6.1	5.8	5.8	5.4	5.4
56.5°	5.8	5.4	5.0	5.0	5.0	4.6
57°	5.4	4.6	4.6	4.6	4.2	4.2
57.5°	4.6	4.2	4.2	4.2	3.8	3.8
58°	4.2	3.8	3.8	3.8	3.5	3.5
58.5°	3.8	3.5	3.5	3.5	3.5	3.1
59°	3.5	3.1	3.1	3.1	3.1	3.1
59.5°	3.1	3.1	3.1	3.1	2.7	2.7
60°	3.1	2.7	2.7	2.7	2.7	2.7
60.5°	2.7	2.7	2.7	2.7	2.7	2.3
61°	2.7	2.3	2.3	2.3	2.3	2.3
61.5°	2.3	2.3	2.3	2.3	2.3	2.3
62°	2.3	2.3	2.3	2.3	1.9	1.9
62.5°	2.3	1.9	1.9	1.9	1.9	1.9
63°	1.9	1.9	1.9	1.9	1.9	1.9
63.5°	1.9	1.9	1.9	1.9	1.9	1.9
64°	1.9	1.9	1.9	1.9	1.5	1.5
64.5°	1.9	1.5	1.5	1.5	1.5	1.5
65°	1.5	1.5	1.5	1.5	1.5	1.5
65.5°	1.5	1.5	1.5	1.5	1.5	1.5
66°	1.5	1.5	1.5	1.5	1.5	1.2



TEST NUMBER: P776300

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMB-4000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	1.2	1.2	1.2	1.2	1.2	1.2
68°	1.2	1.2	1.2	1.2	1.2	1.2
68.5°	1.2	1.2	1.2	1.2	1.2	1.2
69°	1.2	1.2	1.2	1.2	1.2	1.2
69.5°	1.2	1.2	1.2	1.2	1.2	0.8
70°	1.2	1.2	1.2	1.2	0.8	0.8
70.5°	1.2	1.2	1.2	0.8	0.8	0.8
71°	1.2	0.8	0.8	0.8	0.8	0.8
71.5°	0.8	0.8	0.8	0.8	0.8	0.8
72°	0.8	0.8	0.8	0.8	0.8	0.8
72.5°	0.8	0.8	0.8	0.8	0.8	0.8
73°	0.8	0.8	0.8	0.8	0.8	0.8
73.5°	0.8	0.8	0.8	0.8	0.8	0.8
74°	0.8	0.8	0.8	0.8	0.8	0.4
74.5°	0.8	0.8	0.8	0.8	0.4	0.4
75°	0.8	0.8	0.8	0.8	0.4	0.4
75.5°	0.8	0.8	0.8	0.4	0.4	0.4
76°	0.8	0.4	0.4	0.4	0.4	0.4
76.5°	0.4	0.4	0.4	0.4	0.4	0.4
77°	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.4	0.4	0.4	0.4	0.4	0.4
78°	0.4	0.4	0.4	0.4	0.4	0.4
78.5°	0.4	0.4	0.4	0.4	0.4	0.4
79°	0.4	0.4	0.4	0.4	0.4	0.4
79.5°	0.4	0.4	0.4	0.4	0.4	0.4
80°	0.4	0.4	0.4	0.4	0.4	0.0
80.5°	0.4	0.4	0.4	0.4	0.0	0.0
81°	0.4	0.4	0.4	0.4	0.0	0.0
81.5°	0.4	0.4	0.4	0.4	0.0	0.0
82°	0.4	0.4	0.4	0.0	0.0	0.0
82.5°	0.4	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: P776300

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRMB-4000lm-2700K

**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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21.5°	1829.9	1842.2	1856.8	1876.4	1907.5	1927.5	1941.7	1945.5	1939.0	1925.9	1909.8
22°	1806.8	1818.8	1833.4	1855.6	1888.3	1907.5	1921.3	1926.3	1920.2	1906.7	1890.6



44°	254.3	253.9	270.4	303.4	359.5	385.6	397.6	408.3	411.8	391.0	350.3
44.5°	228.2	228.2	246.2	278.1	332.6	354.9	368.7	378.3	380.7	363.8	323.4



66.5°	1.2	1.2	1.2	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5
67°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.5



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°	1889.8	1858.3	1837.2	1824.9	1821.8	1829.9
22°	1870.6	1838.0	1815.3	1802.2	1798.8	1806.8



44°	321.5	290.4	276.6	268.5	260.8	254.3
44.5°	293.5	262.0	252.7	246.6	239.3	228.2

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66.5°	1.5	1.5	1.5	1.5	1.2	1.2
67°	1.5	1.5	1.2	1.2	1.2	1.2

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

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(END OF REPORT)