

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: P776296

Luminaire Tested: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3000K

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P776296
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B004)
Test Lab:
Issue Date: 2/7/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3000K
Description: 4 INCH ROUND MEDIUM LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3982.2 lumens
Efficiency: N/A
Efficacy: 103.4 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1.09 / 1.15
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

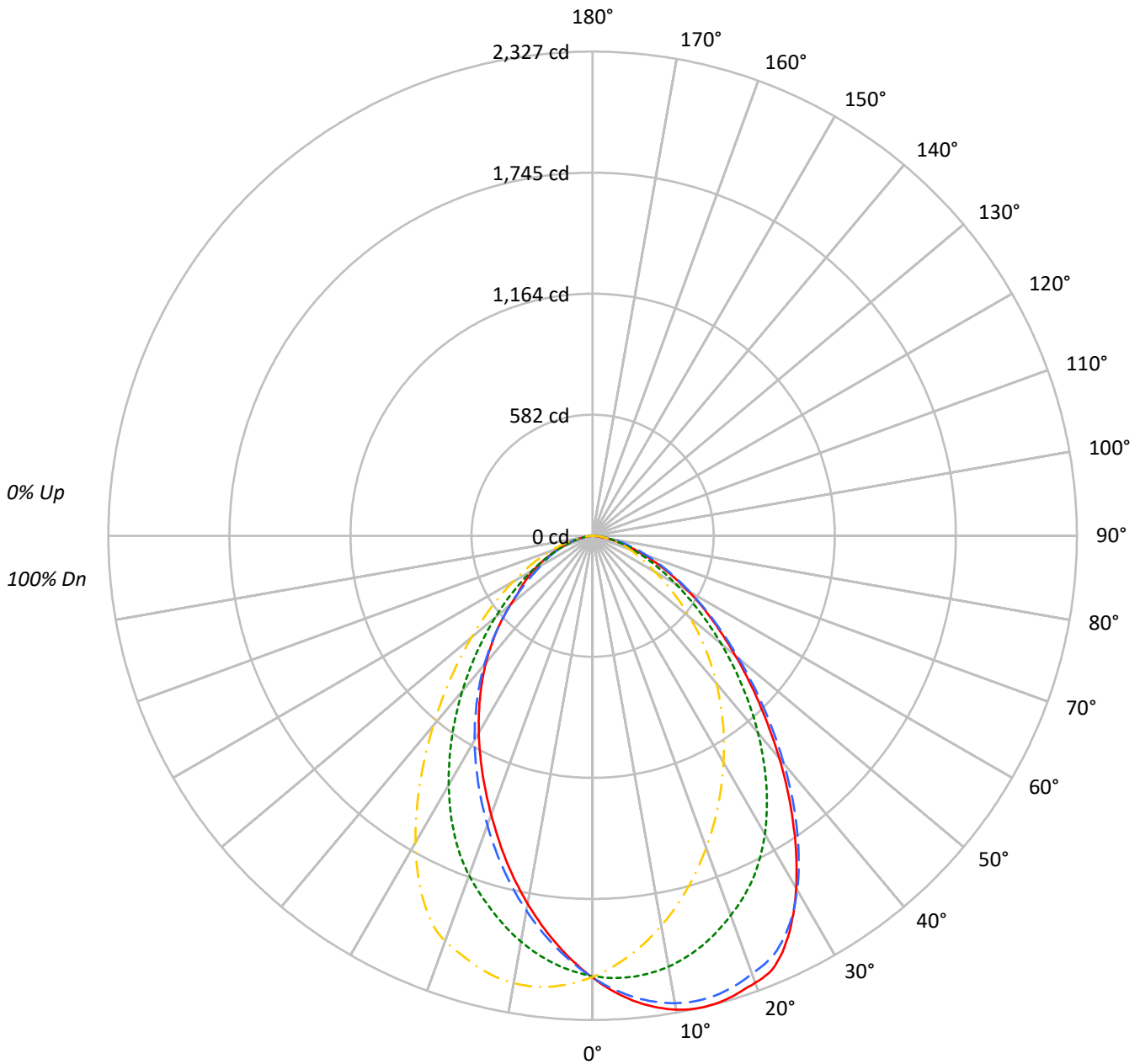
Input Watts (W): 38.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					100			
1	111	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90	88					88			
2	102	95	89	84	100	93	88	83	90	85	82	87	83	80	84	81	78	76					76			
3	94	85	78	73	92	84	77	72	81	75	71	78	73	69	76	72	68	66					66			
4	87	77	69	63	85	76	68	63	73	67	62	71	66	61	69	64	60	58					58			
5	81	70	62	56	79	69	61	55	67	60	55	65	59	54	63	58	54	52					52			
6	75	63	55	50	74	63	55	49	61	54	49	59	53	49	58	52	48	46					46			
7	70	58	50	45	69	57	50	44	56	49	44	54	48	44	53	48	44	42					42			
8	66	54	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	38					38			
9	62	49	42	37	61	49	42	37	48	41	37	47	41	36	46	40	36	35					35			
10	58	46	39	34	57	45	38	34	45	38	34	44	38	33	43	37	33	32					32			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	266940	266940	266940	266940
5°	283347	268857	248960	260986
10°	295530	268655	229577	253142
15°	302779	265595	209883	243042
20°	306250	259951	190939	232577
25°	302853	252836	174158	218802
30°	284287	240517	158921	200918
35°	258013	223369	144800	180827
40°	229194	202958	130968	160047
45°	200778	180559	116523	139179
50°	175014	157629	100889	119450
55°	153106	135663	90135	101456
60°	133552	115505	81601	84848
65°	113218	97823	70188	69741
70°	93094	81982	57770	56188
75°	71575	68561	46826	44151
80°	45659	57037	33193	32613
85°	13573	49817	12996	15306

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 22.5°
 Vertical Angle: 45°
 Luminance: 207612 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	199.0	5.0
10°-20°	551.4	13.8
20°-30°	781.3	19.6
30°-40°	816.4	20.5
40°-50°	687.1	17.3
50°-60°	487.9	12.3
60°-70°	296.0	7.4
70°-80°	135.8	3.4
80°-90°	27.3	0.7
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°	1531.8	38.5
0°-40°	2348.1	59.0
0°-60°	3523.2	88.5
0°-90°	3982.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3982.2	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2121	2121	2121	2121	2121	
5°	2243	2128	1971	2066	2243	216
15°	2324	2038	1611	1865	2324	656
25°	2181	1821	1254	1576	2181	995
35°	1679	1454	942	1177	1679	1047
45°	1128	1014	655	782	1128	872
55°	698	618	411	462	698	628
65°	380	328	236	234	380	379
75°	147	141	96	91	147	159
85°	9	34	9	11	9	18
90°	0	2	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°	2121.1	2121.1	2121.1	2121.1	2121.1	2121.1	2121.1	2121.1	2121.1	2121.1	2121.1
0.5°	2137.6	2137.6	2135.2	2130.5	2119.1	2114.8	2112.1	2110.1	2110.1	2109.7	2111.3
1°	2151.3	2150.9	2146.2	2137.9	2121.5	2112.1	2104.3	2098.0	2095.7	2094.9	2098.8
1.5°	2164.2	2164.2	2157.5	2145.4	2123.8	2108.6	2095.3	2085.5	2081.2	2080.4	2085.9
2°	2176.7	2176.7	2168.5	2152.0	2125.8	2105.1	2086.3	2072.6	2065.9	2065.1	2072.6
2.5°	2188.8	2189.2	2178.7	2158.7	2127.4	2100.7	2077.2	2059.2	2050.6	2049.8	2058.8
3°	2200.2	2201.0	2188.8	2164.6	2128.2	2096.4	2067.9	2045.9	2035.4	2034.2	2045.5
3.5°	2211.6	2212.3	2198.2	2170.1	2128.9	2091.3	2057.7	2032.2	2019.7	2018.1	2031.8
4°	2222.5	2223.7	2207.2	2175.5	2128.9	2086.3	2047.5	2018.1	2003.2	2002.1	2017.3
4.5°	2232.7	2234.3	2215.9	2180.6	2128.9	2080.4	2036.9	2003.6	1986.8	1986.4	2002.9
5°	2242.9	2244.4	2224.1	2184.9	2128.2	2074.5	2026.0	1989.1	1970.7	1969.6	1988.4
5.5°	2251.9	2254.2	2231.9	2188.8	2127.8	2068.2	2015.0	1974.3	1953.9	1952.3	1973.5
6°	2260.9	2263.6	2239.4	2192.8	2126.2	2061.6	2003.2	1959.4	1937.1	1935.5	1958.2
6.5°	2269.1	2272.2	2246.0	2195.9	2124.6	2054.9	1991.9	1944.5	1920.2	1918.7	1942.9
7°	2276.9	2280.5	2252.7	2198.6	2122.7	2047.5	1980.1	1928.8	1902.6	1901.8	1927.7
7.5°	2284.4	2288.3	2258.5	2201.0	2119.9	2039.7	1967.6	1913.2	1885.4	1884.2	1911.6
8°	2291.0	2295.4	2264.0	2202.5	2117.2	2031.8	1955.1	1897.5	1867.8	1866.6	1895.6
8.5°	2296.9	2302.0	2269.1	2204.1	2114.1	2023.2	1942.2	1881.5	1850.1	1849.0	1879.5
9°	2302.8	2308.3	2273.8	2205.3	2110.5	2015.0	1929.6	1865.4	1832.1	1831.0	1863.5
9.5°	2307.9	2313.8	2277.7	2206.1	2106.6	2006.0	1915.9	1849.0	1814.1	1813.3	1847.0
10°	2312.6	2318.8	2281.3	2206.1	2102.3	1996.6	1902.6	1832.5	1796.5	1794.9	1830.2
10.5°	2316.5	2323.2	2284.0	2205.7	2097.6	1986.8	1888.5	1816.1	1778.1	1776.5	1813.3
11°	2319.6	2327.1	2286.7	2205.3	2092.5	1977.0	1875.6	1798.8	1759.7	1758.5	1796.5
11.5°	2322.4	2330.2	2288.3	2203.7	2087.0	1967.2	1860.7	1782.0	1741.7	1740.5	1779.7
12°	2324.3	2332.9	2289.9	2202.2	2081.2	1956.6	1846.2	1764.8	1722.9	1721.7	1762.4
12.5°	2325.9	2334.9	2290.7	2200.2	2074.9	1946.1	1831.3	1747.9	1704.5	1703.3	1744.8
13°	2326.7	2336.5	2291.0	2197.5	2068.2	1935.1	1817.3	1730.3	1686.1	1684.5	1728.0
13.5°	2327.1	2337.2	2290.7	2194.3	2061.2	1923.8	1802.4	1713.5	1667.3	1666.1	1710.4
14°	2326.3	2337.6	2289.9	2190.8	2054.1	1912.0	1787.1	1695.5	1648.5	1646.9	1692.7
14.5°	2325.5	2337.2	2288.3	2186.9	2045.9	1900.3	1771.8	1677.9	1630.1	1628.1	1675.1
15°	2323.9	2336.1	2286.3	2182.2	2038.5	1888.5	1756.2	1659.8	1610.9	1609.7	1657.1
15.5°	2321.6	2334.5	2284.0	2177.5	2029.9	1876.0	1740.9	1642.2	1592.1	1590.9	1639.5
16°	2319.2	2332.2	2280.9	2172.0	2020.9	1863.5	1725.2	1624.6	1573.3	1571.7	1621.9
16.5°	2315.7	2329.4	2277.3	2166.1	2011.9	1850.5	1709.2	1607.0	1554.9	1552.9	1604.2
17°	2312.2	2326.3	2273.0	2159.9	2002.5	1838.0	1693.5	1589.0	1535.7	1534.1	1586.2
17.5°	2307.9	2322.8	2268.7	2153.2	1992.3	1824.3	1677.1	1571.0	1516.9	1515.7	1568.6
18°	2303.6	2318.5	2263.6	2146.2	1982.5	1811.0	1661.0	1552.9	1498.5	1496.6	1550.6
18.5°	2298.5	2313.8	2258.2	2138.7	1972.3	1797.3	1644.6	1534.5	1480.1	1478.2	1532.6
19°	2294.2	2308.7	2252.3	2131.3	1962.1	1784.0	1628.9	1516.5	1461.7	1459.4	1515.0
19.5°	2290.7	2304.0	2246.4	2123.1	1951.6	1770.3	1611.7	1498.9	1444.1	1441.3	1497.0
20°	2286.7	2300.0	2240.1	2114.8	1941.0	1756.6	1595.2	1480.9	1425.7	1422.9	1479.3
20.5°	2282.4	2295.7	2234.3	2107.0	1930.0	1742.5	1578.8	1462.9	1408.5	1405.3	1461.3
21°	2277.3	2291.0	2228.8	2099.2	1919.1	1728.4	1562.3	1445.7	1390.4	1387.3	1443.7



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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°	2255.8	<i>2272.6</i>	2208.4	2073.3	1885.0	1685.7	1511.8	1393.6	1338.8	1334.8	1390.8
23°	2243.7	<i>2263.6</i>	2200.2	2063.9	1872.9	1671.2	1495.4	1376.7	1321.1	1317.6	1373.2
23.5°	2230.0	<i>2253.1</i>	2191.2	2053.8	1860.3	1656.3	1478.2	1359.5	1304.7	1301.2	1356.0
24°	2215.5	<i>2240.1</i>	2179.4	2042.4	1847.4	1641.4	1461.3	1342.7	1287.9	1283.5	1338.4
24.5°	2199.4	<i>2225.3</i>	2166.5	2030.7	1834.1	1625.8	1444.1	1326.2	1271.0	1266.3	1321.1
25°	2181.0	<i>2210.4</i>	2152.8	2017.3	1820.8	1610.1	1427.6	1309.0	1254.2	1249.9	1303.9
25.5°	2162.2	<i>2194.7</i>	2137.9	2003.2	1805.9	1594.5	1410.8	1292.9	1238.1	1233.4	1286.7
26°	2143.4	<i>2177.1</i>	2122.3	1988.4	1791.4	1578.4	1394.0	1276.1	1221.7	1217.0	1269.5
26.5°	2122.7	<i>2157.5</i>	2105.8	1972.3	1775.4	1562.0	1376.3	1260.1	1205.2	1200.1	1252.2
27°	2100.7	<i>2138.7</i>	2088.6	1955.5	1759.7	1545.9	1359.5	1243.2	1188.8	1184.1	1235.0
27.5°	2077.6	<i>2118.4</i>	2069.8	1938.2	1742.9	1529.1	1342.7	1227.2	1173.1	1168.0	1218.5
28°	2055.7	<i>2096.4</i>	2050.2	1919.8	1726.4	1512.2	1325.8	1210.7	1156.7	1152.0	1201.3
28.5°	2031.0	<i>2074.1</i>	2030.3	1901.4	1708.8	1495.4	1308.6	1195.1	1141.4	1135.9	1184.5
29°	2006.4	<i>2051.4</i>	2009.5	1881.9	1691.2	1477.8	1291.8	1179.0	1125.4	1119.9	1167.6
29.5°	1981.3	<i>2027.5</i>	1987.6	1862.3	1672.8	1460.9	1275.3	1162.9	1109.3	1104.2	1150.8
30°	1956.3	<i>2003.2</i>	1965.3	1841.9	1655.1	1442.9	1258.1	1147.3	1093.6	1088.5	1134.4
30.5°	1929.2	<i>1978.2</i>	1942.2	1820.8	1636.0	1424.9	1241.3	1131.6	1078.4	1072.9	1117.5
31°	1902.6	<i>1952.3</i>	1918.3	1799.6	1616.8	1407.3	1224.4	1115.6	1062.7	1057.2	1100.7
31.5°	1875.6	<i>1925.7</i>	1894.0	1777.3	1597.2	1388.9	1207.6	1099.5	1047.8	1041.2	1083.9
32°	1848.2	<i>1899.5</i>	1869.3	1755.0	1578.0	1370.9	1190.7	1083.9	1032.2	1025.9	1067.8
32.5°	1820.4	<i>1872.5</i>	1843.5	1732.7	1557.6	1352.9	1174.3	1068.6	1017.3	1010.6	1051.0
33°	1793.0	<i>1845.1</i>	1818.0	1710.0	1537.3	1334.1	1157.1	1052.9	1002.0	995.4	1034.5
33.5°	1765.2	<i>1816.9</i>	1791.8	1686.1	1516.9	1315.7	1140.6	1037.6	987.1	980.1	1017.7
34°	1737.0	<i>1789.4</i>	1765.2	1662.2	1496.2	1296.9	1123.4	1022.4	972.3	964.8	1001.6
34.5°	1707.6	<i>1760.1</i>	1737.0	1638.3	1475.0	1278.1	1107.0	1006.7	957.4	949.5	985.2
35°	1679.4	<i>1731.9</i>	1710.0	1613.6	1453.9	1259.3	1090.1	991.4	942.5	934.7	968.7
35.5°	1651.2	<i>1702.9</i>	1682.6	1589.0	1432.7	1240.9	1073.7	976.2	928.4	919.8	952.7
36°	1623.0	<i>1675.1</i>	1654.8	1563.9	1411.2	1222.1	1056.8	961.3	913.1	904.5	937.0
36.5°	1594.1	<i>1646.1</i>	1626.6	1538.8	1389.7	1202.5	1040.4	946.0	899.0	889.6	920.6
37°	1564.7	<i>1616.4</i>	1599.1	1513.4	1367.7	1183.7	1023.5	930.7	883.8	874.8	904.5
37.5°	1536.9	<i>1587.4</i>	1571.0	1487.9	1345.8	1165.3	1007.1	915.9	869.7	859.9	888.9
38°	1508.3	<i>1558.4</i>	1542.8	1462.1	1323.9	1145.7	990.3	901.0	854.8	845.4	872.8
38.5°	1479.7	<i>1529.1</i>	1513.8	1436.3	1302.0	1126.9	974.6	886.1	840.3	830.5	856.7
39°	1450.7	<i>1500.9</i>	1486.4	1410.4	1280.0	1107.7	957.8	870.8	826.2	816.0	841.5
39.5°	1423.3	<i>1471.9</i>	1457.8	1384.6	1257.7	1088.9	941.7	856.0	812.1	801.1	825.4
40°	1395.1	<i>1442.5</i>	1430.0	1358.7	1235.4	1069.4	925.3	841.1	797.2	786.7	810.1
40.5°	1366.6	<i>1413.5</i>	1401.4	1332.9	1213.1	1050.6	908.8	825.8	782.7	771.8	794.1
41°	1338.8	<i>1385.7</i>	1374.4	1306.7	1190.7	1031.4	892.8	811.3	768.6	756.9	779.2
41.5°	1311.7	<i>1357.6</i>	1346.2	1281.2	1169.2	1012.6	876.7	796.4	754.5	742.4	763.6
42°	1284.7	<i>1329.0</i>	1319.2	1255.7	1146.5	993.4	860.3	781.6	740.1	728.3	748.3
42.5°	1257.3	<i>1300.8</i>	1291.8	1229.9	1124.6	975.0	844.2	767.1	725.6	713.8	733.4
43°	1231.1	<i>1274.2</i>	1264.4	1205.2	1102.6	956.2	828.6	752.6	711.5	699.3	718.1
43.5°	1205.2	<i>1246.7</i>	1237.3	1179.4	1080.3	937.4	812.1	737.7	697.4	684.8	702.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1128.1	1166.5	1158.6	1105.4	1014.5	881.4	765.1	693.9	654.7	642.2	658.2
45.5°	1103.4	1140.6	1132.8	1080.3	993.0	863.0	749.1	679.0	641.0	628.1	643.3
46°	1078.4	1114.8	1107.3	1056.4	971.5	844.6	733.4	664.9	626.9	614.0	628.5
46.5°	1053.3	1089.7	1082.7	1032.6	950.3	826.6	717.7	650.4	612.8	599.5	614.0
47°	1030.2	1065.1	1057.2	1009.1	928.4	808.2	702.1	635.9	598.7	585.8	600.3
47.5°	1006.7	1040.0	1032.6	985.2	907.3	790.2	686.8	621.8	584.2	571.7	585.0
48°	982.8	1015.3	1008.7	962.1	886.5	772.6	671.1	607.7	570.9	558.0	570.9
48.5°	960.1	992.6	985.2	939.8	866.1	754.9	656.3	593.2	556.8	543.9	556.8
49°	938.6	969.1	962.1	917.4	845.4	736.9	641.0	579.5	542.7	530.6	543.5
49.5°	916.3	945.6	939.0	895.1	825.0	720.1	625.7	565.4	529.0	516.9	529.0
50°	893.9	922.9	915.9	873.6	805.1	702.5	610.8	551.3	515.3	503.6	515.7
50.5°	873.6	901.4	893.6	851.3	785.1	685.2	596.0	537.2	501.2	490.2	502.0
51°	852.4	879.8	871.2	830.5	765.9	668.4	581.1	523.5	487.9	476.5	488.7
51.5°	831.3	857.5	850.1	809.4	746.7	651.6	566.6	509.8	475.0	464.0	475.4
52°	811.7	837.2	829.3	789.0	727.1	635.1	552.1	496.5	461.3	451.5	462.4
52.5°	792.5	817.2	808.2	769.0	708.3	618.3	537.6	482.8	449.1	438.6	449.1
53°	772.2	796.1	787.8	748.7	689.9	602.2	523.5	469.5	442.5	426.0	436.6
53.5°	752.6	776.5	767.9	729.1	671.5	586.2	509.0	456.6	435.4	414.3	424.1
54°	735.0	757.3	747.9	709.9	653.1	570.1	495.3	443.6	427.6	407.2	411.9
54.5°	716.6	738.5	728.7	691.1	635.5	554.5	481.6	431.1	419.0	399.8	399.8
55°	697.8	719.7	709.9	672.3	618.3	539.2	468.3	419.0	410.8	392.0	388.0
55.5°	681.3	701.3	691.5	654.3	601.1	523.9	455.0	406.4	401.7	383.7	376.7
56°	663.7	683.3	673.1	635.9	583.8	509.0	441.7	397.4	393.1	375.5	365.3
56.5°	646.1	665.7	655.5	618.7	567.0	494.2	428.4	390.4	384.5	366.9	354.4
57°	629.2	648.0	637.9	601.4	550.9	479.7	415.8	382.6	375.5	358.7	343.8
57.5°	612.8	631.6	620.6	584.6	534.9	465.2	403.3	374.7	366.9	350.5	334.4
58°	595.2	614.8	603.8	567.8	519.2	451.5	391.2	366.5	358.7	342.2	325.0
58.5°	579.1	597.9	587.3	551.7	503.6	437.8	379.4	358.3	350.1	334.0	315.6
59°	562.3	581.9	570.9	535.7	488.3	424.1	367.7	349.7	341.4	326.2	306.2
59.5°	545.8	565.4	555.2	520.0	473.4	410.8	355.9	341.4	332.8	318.3	296.8
60°	530.6	549.4	539.6	504.3	458.9	397.8	344.6	333.6	324.2	310.1	289.8
60.5°	513.3	533.7	524.3	489.5	444.4	385.3	334.4	325.4	315.6	302.3	282.7
61°	498.5	516.9	508.6	474.6	430.7	372.8	324.2	317.2	307.0	294.1	275.7
61.5°	482.8	502.4	494.5	460.5	416.6	360.2	314.0	309.3	298.4	286.2	268.6
62°	467.9	487.1	480.1	446.0	403.3	348.9	303.9	301.1	289.4	278.4	261.6
62.5°	452.6	471.8	465.6	432.3	390.0	337.5	293.7	292.5	280.4	270.2	254.5
63°	437.4	457.3	451.5	418.2	377.1	326.6	283.9	284.3	271.4	262.0	247.5
63.5°	422.9	442.5	437.8	404.9	364.2	315.2	275.3	275.7	262.3	254.1	240.4
64°	408.0	428.4	424.5	391.6	351.6	304.2	267.0	267.4	253.3	245.9	234.2
64.5°	394.3	413.9	411.1	379.0	340.3	292.9	260.0	259.2	244.3	237.7	227.5
65°	380.2	400.6	398.2	366.5	328.5	283.1	253.3	251.4	235.7	229.8	220.8
65.5°	366.9	386.5	385.3	354.4	316.8	272.9	246.7	242.8	227.1	221.6	214.2
66°	352.8	373.6	372.8	342.2	305.4	262.3	239.6	234.9	218.5	213.8	207.9



TEST NUMBER: P776296

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	314.0	334.4	336.0	307.4	272.5	234.9	219.7	211.1	193.4	190.7	188.7
68°	301.1	321.9	324.2	296.4	261.6	225.9	213.0	203.2	185.6	182.9	182.5
68.5°	288.6	309.7	312.9	285.1	251.8	217.3	206.7	195.8	178.2	175.8	176.2
69°	276.8	297.6	301.5	274.5	242.0	209.1	200.1	188.0	170.7	168.4	169.9
69.5°	264.7	285.5	289.8	263.9	232.2	200.9	193.4	180.5	164.1	161.7	163.7
70°	253.0	274.1	279.2	254.1	222.8	193.0	187.2	173.1	157.0	155.1	157.4
70.5°	241.2	262.7	268.6	243.6	213.4	185.6	180.9	166.4	150.4	148.4	151.1
71°	229.8	251.4	258.0	234.2	204.8	178.2	174.6	159.4	144.1	142.1	145.3
71.5°	218.9	240.4	247.1	224.4	195.8	171.1	168.4	152.7	137.8	135.9	139.0
72°	208.3	229.5	237.3	215.0	187.6	164.1	162.1	146.4	131.6	129.6	133.1
72.5°	197.3	219.3	227.1	206.0	178.9	157.4	155.8	140.2	125.3	123.7	127.3
73°	186.8	209.1	217.3	196.6	171.1	151.1	150.0	133.9	119.4	117.9	121.4
73.5°	176.6	198.5	207.5	188.0	162.9	144.5	143.7	128.0	113.6	112.0	115.5
74°	166.4	189.1	198.1	179.7	155.5	138.2	137.8	122.2	107.7	106.1	110.0
74.5°	156.6	179.3	189.1	171.1	148.0	132.3	132.3	116.3	102.2	100.6	104.9
75°	147.2	169.9	179.7	162.9	141.0	126.5	126.1	110.8	96.3	94.8	99.5
75.5°	138.2	160.5	170.7	155.1	133.9	120.6	120.6	105.3	90.8	89.3	94.4
76°	129.2	151.9	162.1	147.2	127.3	115.1	114.7	99.5	85.8	83.8	89.3
76.5°	120.6	142.9	153.5	139.8	120.6	109.6	109.6	94.0	80.3	78.7	84.2
77°	111.6	134.7	145.3	132.7	114.3	104.5	104.2	88.9	75.2	73.2	79.1
77.5°	103.0	126.9	137.4	125.3	107.7	99.5	99.1	83.8	70.1	68.1	74.4
78°	94.8	118.6	130.0	118.3	101.8	94.4	93.6	78.3	65.0	63.0	69.3
78.5°	86.1	110.4	122.2	111.2	95.5	89.7	88.9	73.2	59.9	58.0	64.6
79°	78.3	102.6	114.3	104.5	90.1	85.4	83.8	68.1	55.2	53.3	59.9
79.5°	70.5	95.2	106.9	97.9	84.2	80.7	78.7	63.4	50.5	48.6	55.2
80°	63.0	87.7	99.5	91.6	78.7	76.4	74.0	58.3	45.8	43.9	50.9
80.5°	55.6	80.3	92.8	85.4	73.6	72.0	69.3	53.6	41.1	39.5	46.6
81°	48.6	73.6	86.1	79.5	68.5	67.7	64.6	48.9	36.8	35.6	42.7
81.5°	41.5	67.0	79.1	73.6	63.8	63.4	60.3	44.6	32.5	31.7	38.4
82°	34.5	60.7	72.8	68.1	59.1	59.1	55.6	39.9	28.2	27.8	34.8
82.5°	28.2	54.4	67.0	62.7	54.4	54.8	51.3	36.4	23.9	23.9	31.3
83°	21.9	48.6	61.1	57.6	50.1	50.9	47.0	32.5	19.6	20.0	27.8
83.5°	16.1	43.1	55.6	52.5	45.8	47.0	43.1	28.6	15.7	17.2	24.3
84°	14.1	38.0	50.1	47.4	41.9	42.7	39.2	25.1	12.5	14.9	20.8
84.5°	11.7	33.7	45.0	42.7	38.0	39.2	35.6	21.1	10.2	12.9	17.6
85°	9.4	29.8	39.9	38.0	34.5	35.2	31.7	18.8	9.0	11.0	14.5
85.5°	7.0	25.8	35.2	33.7	30.5	31.7	28.2	16.4	7.4	9.0	11.4
86°	5.1	22.3	30.5	29.4	27.0	27.8	24.7	14.1	6.3	7.0	8.6
86.5°	3.9	18.8	25.8	25.1	23.1	23.9	20.8	11.7	5.1	5.5	5.5
87°	2.7	15.3	21.5	21.1	19.6	20.4	17.6	9.8	3.9	3.5	2.7
87.5°	2.0	11.7	17.2	17.2	16.4	16.8	14.1	7.4	2.3	2.0	0.8
88°	0.8	8.6	13.3	13.7	13.3	13.7	11.0	5.5	1.2	0.8	0.4
88.5°	0.4	5.5	10.2	10.6	10.2	10.2	7.8	3.1	0.4	0.4	0.0



TEST NUMBER: P776296

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.4	0.4	1.2	2.0	1.6	0.8	0.4	0.0	0.4	0.0



TEST NUMBER: P776296

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2121.1	2121.1	2121.1	2121.1	2121.1	2121.1
0.5°	2114.1	2112.5	2119.5	2127.0	2133.2	2137.6
1°	2105.4	2109.0	2121.5	2134.0	2144.2	2151.3
1.5°	2096.4	2105.1	2122.7	2140.3	2154.8	2164.2
2°	2087.0	2100.0	2123.5	2146.6	2165.4	2176.7
2.5°	2077.2	2095.7	2124.2	2152.4	2174.7	2188.8
3°	2067.5	2090.6	2124.2	2157.5	2184.1	2200.2
3.5°	2056.9	2085.1	2124.2	2162.6	2193.2	2211.6
4°	2046.3	2079.2	2123.5	2166.9	2201.4	2222.5
4.5°	2035.7	2072.6	2122.3	2170.8	2209.6	2232.7
5°	2024.0	2065.9	2121.1	2174.4	2217.0	2242.9
5.5°	2012.6	2059.2	2119.1	2177.5	2224.5	2251.9
6°	2000.9	2051.8	2117.2	2179.8	2230.7	2260.9
6.5°	1989.1	2044.0	2114.1	2182.2	2237.0	2269.1
7°	1976.6	2036.1	2111.3	2183.8	2242.1	2276.9
7.5°	1964.1	2027.5	2107.8	2184.9	2247.2	2284.4
8°	1951.2	2018.9	2103.5	2185.7	2251.5	2291.0
8.5°	1937.9	2009.5	2099.2	2185.7	2255.4	2296.9
9°	1924.5	2000.5	2094.5	2185.7	2258.9	2302.8
9.5°	1911.2	1990.7	2089.4	2184.9	2261.7	2307.9
10°	1897.5	1980.9	2083.9	2183.4	2264.0	2312.6
10.5°	1883.4	1970.4	2078.0	2181.8	2266.0	2316.5
11°	1868.9	1960.2	2071.4	2179.4	2267.2	2319.6
11.5°	1854.4	1948.8	2064.3	2176.7	2267.5	2322.4
12°	1840.0	1937.9	2057.3	2173.2	2267.5	2324.3
12.5°	1825.1	1926.1	2049.4	2169.3	2266.8	2325.9
13°	1810.6	1914.4	2041.6	2165.0	2265.6	2326.7
13.5°	1795.7	1902.2	2033.4	2160.3	2263.6	2327.1
14°	1780.1	1890.5	2024.8	2155.2	2261.3	2326.3
14.5°	1764.4	1877.9	2015.8	2149.7	2258.5	2325.5
15°	1749.1	1865.4	2006.8	2143.4	2255.0	2323.9
15.5°	1733.8	1852.9	1997.4	2136.8	2251.1	2321.6
16°	1718.2	1840.7	1988.0	2130.1	2246.8	2319.2
16.5°	1702.5	1827.8	1978.2	2123.5	2242.1	2315.7
17°	1687.6	1815.3	1968.8	2116.0	2237.0	2312.2
17.5°	1671.6	1802.8	1959.4	2108.6	2231.5	2307.9
18°	1655.5	1789.8	1950.0	2102.3	2225.7	2303.6
18.5°	1639.5	1776.9	1939.8	2095.7	2221.0	2298.5
19°	1623.8	1763.6	1930.4	2088.6	2216.6	2294.2
19.5°	1608.2	1750.7	1919.4	2080.8	2211.9	2290.7
20°	1592.5	1736.6	1908.1	2072.6	2206.1	2286.7
20.5°	1576.4	1722.5	1896.7	2063.9	2199.8	2282.4
21°	1560.0	1707.6	1884.2	2054.1	2192.8	2277.3

TEST NUMBER: P776296

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1510.3	1661.8	1841.1	2015.4	2161.8	2255.8
23°	1493.0	1645.7	1825.1	1999.3	2147.7	2243.7
23.5°	1476.2	1628.9	1807.9	1982.9	2132.5	2230.0
24°	1459.0	1611.3	1790.2	1965.3	2116.0	2215.5
24.5°	1442.1	1593.7	1771.0	1946.1	2098.8	2199.4
25°	1424.5	1575.7	1752.6	1926.9	2080.0	2181.0
25.5°	1406.9	1557.3	1733.5	1907.7	2059.6	2162.2
26°	1388.9	1538.5	1713.5	1887.3	2039.3	2143.4
26.5°	1370.9	1520.1	1693.1	1865.8	2018.1	2122.7
27°	1353.2	1501.3	1672.8	1844.7	1995.4	2100.7
27.5°	1334.8	1481.7	1652.0	1821.9	1971.5	2077.6
28°	1316.4	1461.7	1630.9	1798.5	1947.6	2055.7
28.5°	1298.0	1442.9	1609.3	1775.4	1923.8	2031.0
29°	1279.6	1422.6	1587.4	1751.9	1899.1	2006.4
29.5°	1261.2	1403.0	1565.9	1726.8	1873.2	1981.3
30°	1242.4	1382.6	1543.9	1702.5	1848.2	1956.3
30.5°	1223.6	1362.6	1520.8	1677.1	1821.2	1929.2
31°	1204.8	1342.3	1498.5	1652.0	1794.9	1902.6
31.5°	1186.4	1321.9	1475.4	1627.0	1767.9	1875.6
32°	1168.0	1300.8	1451.9	1600.3	1740.9	1848.2
32.5°	1148.9	1280.8	1429.2	1574.9	1713.1	1820.4
33°	1130.4	1259.7	1405.7	1549.0	1686.5	1793.0
33.5°	1112.0	1239.7	1382.6	1523.2	1659.1	1765.2
34°	1094.0	1218.5	1358.3	1497.3	1631.6	1737.0
34.5°	1075.2	1198.2	1334.8	1470.7	1603.8	1707.6
35°	1056.4	1177.0	1311.0	1444.9	1576.4	1679.4
35.5°	1038.0	1157.1	1287.9	1419.0	1548.6	1651.2
36°	1020.0	1137.1	1264.0	1393.2	1522.0	1623.0
36.5°	1001.6	1116.0	1240.5	1367.7	1494.2	1594.1
37°	983.6	1095.2	1217.4	1341.9	1467.2	1564.7
37.5°	965.2	1075.2	1193.5	1316.4	1439.0	1536.9
38°	947.6	1054.9	1170.4	1291.0	1412.0	1508.3
38.5°	929.6	1034.5	1147.3	1266.3	1385.4	1479.7
39°	912.3	1014.2	1124.2	1241.3	1357.9	1450.7
39.5°	894.3	994.2	1101.9	1216.6	1332.1	1423.3
40°	876.3	974.2	1078.4	1191.5	1305.1	1395.1
40.5°	859.1	954.2	1056.8	1167.6	1279.2	1366.6
41°	841.9	934.3	1034.5	1143.0	1251.8	1338.8
41.5°	824.6	914.3	1012.6	1119.9	1227.2	1311.7
42°	807.4	895.1	990.7	1096.4	1202.1	1284.7
42.5°	790.6	875.9	969.5	1073.3	1176.7	1257.3
43°	773.3	856.7	948.4	1049.8	1150.8	1231.1
43.5°	756.9	837.9	927.2	1027.5	1126.9	1205.2



TEST NUMBER: P776296

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	707.2	782.0	866.1	961.3	1054.1	1128.1
45.5°	690.7	763.9	846.6	939.8	1031.8	1103.4
46°	675.1	745.9	827.0	918.2	1009.1	1078.4
46.5°	659.0	727.9	807.4	897.9	986.4	1053.3
47°	642.6	710.7	788.6	877.1	962.9	1030.2
47.5°	627.3	693.1	769.8	856.7	941.3	1006.7
48°	612.0	675.8	751.4	836.4	920.2	982.8
48.5°	596.7	659.0	733.0	817.2	899.0	960.1
49°	581.9	642.6	715.0	798.0	877.5	938.6
49.5°	566.6	626.5	697.4	779.2	857.5	916.3
50°	551.7	610.1	680.1	759.6	836.8	893.9
50.5°	537.2	594.4	662.5	741.6	816.8	873.6
51°	522.7	578.7	646.1	723.2	796.8	852.4
51.5°	509.0	563.5	629.2	705.6	778.4	831.3
52°	494.9	548.6	613.2	688.4	759.2	811.7
52.5°	481.2	533.7	596.7	670.4	740.4	792.5
53°	467.5	518.8	581.5	653.5	722.4	772.2
53.5°	454.6	504.3	565.4	636.7	704.4	752.6
54°	441.7	490.2	550.1	620.2	686.4	735.0
54.5°	428.4	475.8	534.5	604.2	669.6	716.6
55°	415.8	462.4	520.4	588.1	652.3	697.8
55.5°	403.7	448.7	505.9	572.5	635.5	681.3
56°	391.6	435.4	491.4	557.2	618.7	663.7
56.5°	379.4	422.5	477.3	541.9	603.0	646.1
57°	367.7	409.6	463.6	527.0	587.0	629.2
57.5°	356.7	396.7	449.5	512.2	571.3	612.8
58°	345.4	384.9	436.2	498.1	556.4	595.2
58.5°	334.8	372.4	422.9	484.0	541.1	579.1
59°	324.6	360.6	410.0	470.3	526.3	562.3
59.5°	314.0	348.9	397.4	456.2	511.4	545.8
60°	303.5	337.1	384.9	442.5	496.5	530.6
60.5°	292.9	325.8	372.4	429.5	482.0	513.3
61°	283.1	314.8	360.6	416.6	467.5	498.5
61.5°	273.3	303.9	348.5	403.7	453.0	482.8
62°	264.3	293.3	337.1	391.2	438.9	467.9
62.5°	255.3	283.1	325.4	378.6	424.5	452.6
63°	245.9	272.9	314.4	366.5	410.8	437.4
63.5°	237.3	262.7	303.1	354.8	397.0	422.9
64°	229.1	253.0	292.5	343.0	383.7	408.0
64.5°	220.8	243.6	281.9	331.3	370.8	394.3
65°	213.0	234.2	271.7	320.3	357.5	380.2
65.5°	205.2	224.8	261.2	308.6	345.0	366.9
66°	197.3	216.1	251.4	297.6	332.0	352.8

TEST NUMBER: P776296

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	176.2	190.7	222.4	265.9	296.0	314.0
68°	169.5	182.9	213.4	255.7	284.3	301.1
68.5°	163.3	174.6	204.4	245.1	272.9	288.6
69°	157.0	167.2	195.8	235.3	261.6	276.8
69.5°	150.8	159.8	187.2	225.5	250.6	264.7
70°	145.3	152.7	178.9	216.1	239.2	253.0
70.5°	139.8	145.7	170.7	206.4	228.7	241.2
71°	134.7	141.0	162.9	197.3	218.1	229.8
71.5°	129.2	134.3	155.1	188.3	207.9	218.9
72°	124.1	127.7	147.6	179.3	198.1	208.3
72.5°	119.0	120.6	139.4	170.7	188.3	197.3
73°	114.3	113.9	132.7	162.1	178.6	186.8
73.5°	109.2	108.1	126.1	153.9	169.2	176.6
74°	104.5	102.2	119.4	145.7	160.1	166.4
74.5°	99.8	96.7	112.8	138.2	151.1	156.6
75°	94.8	90.8	106.5	130.4	142.9	147.2
75.5°	90.5	85.8	100.2	123.0	134.7	138.2
76°	85.8	80.7	94.0	115.1	126.9	129.2
76.5°	81.1	75.6	87.7	107.7	118.6	120.6
77°	76.4	70.9	82.2	100.6	110.8	111.6
77.5°	72.0	66.2	76.4	94.0	102.6	103.0
78°	67.7	61.9	71.3	87.3	95.5	94.8
78.5°	63.4	57.6	65.8	80.7	88.1	86.1
79°	59.1	53.3	60.7	74.8	81.1	78.3
79.5°	54.8	48.9	56.0	68.5	74.4	70.5
80°	50.5	45.0	50.9	62.7	67.7	63.0
80.5°	46.6	41.1	46.6	57.2	61.9	55.6
81°	42.7	37.2	42.3	51.7	56.0	48.6
81.5°	38.8	33.7	37.6	46.6	50.1	41.5
82°	34.8	30.2	33.7	41.5	44.6	34.5
82.5°	31.3	26.6	29.8	36.8	39.9	28.2
83°	27.4	23.1	25.8	32.5	34.8	21.9
83.5°	23.9	19.6	21.9	28.2	30.5	16.1
84°	20.0	16.4	18.4	23.9	26.6	14.1
84.5°	16.4	13.3	14.9	20.0	23.1	11.7
85°	12.9	10.6	11.7	16.1	19.6	9.4
85.5°	9.8	7.8	8.6	12.9	16.1	7.0
86°	6.7	5.1	5.9	9.8	12.9	5.1
86.5°	3.5	2.0	2.7	6.7	10.2	3.9
87°	1.2	0.4	0.8	3.5	7.0	2.7
87.5°	0.4	0.0	0.4	0.8	3.9	2.0
88°	0.0	0.0	0.0	0.0	0.8	0.8
88.5°	0.0	0.0	0.0	0.0	0.4	0.4



TEST NUMBER: P776296

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3000K

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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Scaled Data Report



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21.5°	2271.5	2285.6	2222.5	2091.0	1908.1	1714.3	1545.5	1428.0	1373.2	1369.7	1425.7
22°	2264.8	2279.7	2215.9	2082.3	1896.3	1699.8	1528.3	1410.8	1356.0	1352.1	1408.1



44°	1178.6	1219.3	1211.5	1154.3	1058.0	918.2	796.4	722.8	682.9	670.7	687.6
44.5°	1152.8	1191.9	1184.9	1129.7	1036.1	899.8	780.8	708.3	668.8	656.3	673.1



66.5°	339.9	360.2	360.2	330.5	293.7	253.0	233.0	227.1	209.9	206.0	201.3
67°	326.6	346.9	348.1	318.3	283.1	243.9	226.3	218.9	201.7	198.1	195.0



89°	0.0	2.3	7.0	7.4	7.0	7.0	4.7	1.6	0.0	0.4	0.0
89.5°	0.0	0.4	3.9	4.3	4.3	3.9	2.3	0.4	0.0	0.4	0.0

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21.5°	1543.5	1692.7	1871.3	2042.8	2184.5	2271.5
22°	1527.1	1677.9	1856.8	2030.3	2174.0	2264.8



44°	740.1	818.4	906.5	1004.8	1103.0	1178.6
44.5°	723.6	800.0	886.1	983.2	1079.2	1152.8

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66.5°	190.3	207.5	241.6	287.0	319.9	339.9
67°	183.3	198.9	231.8	276.1	307.8	326.6

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

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Scaled Data Report



(END OF REPORT)