

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: P776348

Luminaire Tested: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-4000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776348
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B041)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBS3040CSD-HCD61TRH-HCD61TRLWW-4000lm-4000K
Description: 6 INCH ROUND SHALLOW-WIDE LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4880.8 lumens
Efficiency: N/A
Efficacy: 126.8 lumens/watt
Spacing Criteria (0/90/45): 1.17 / 1.16 / 1.25
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

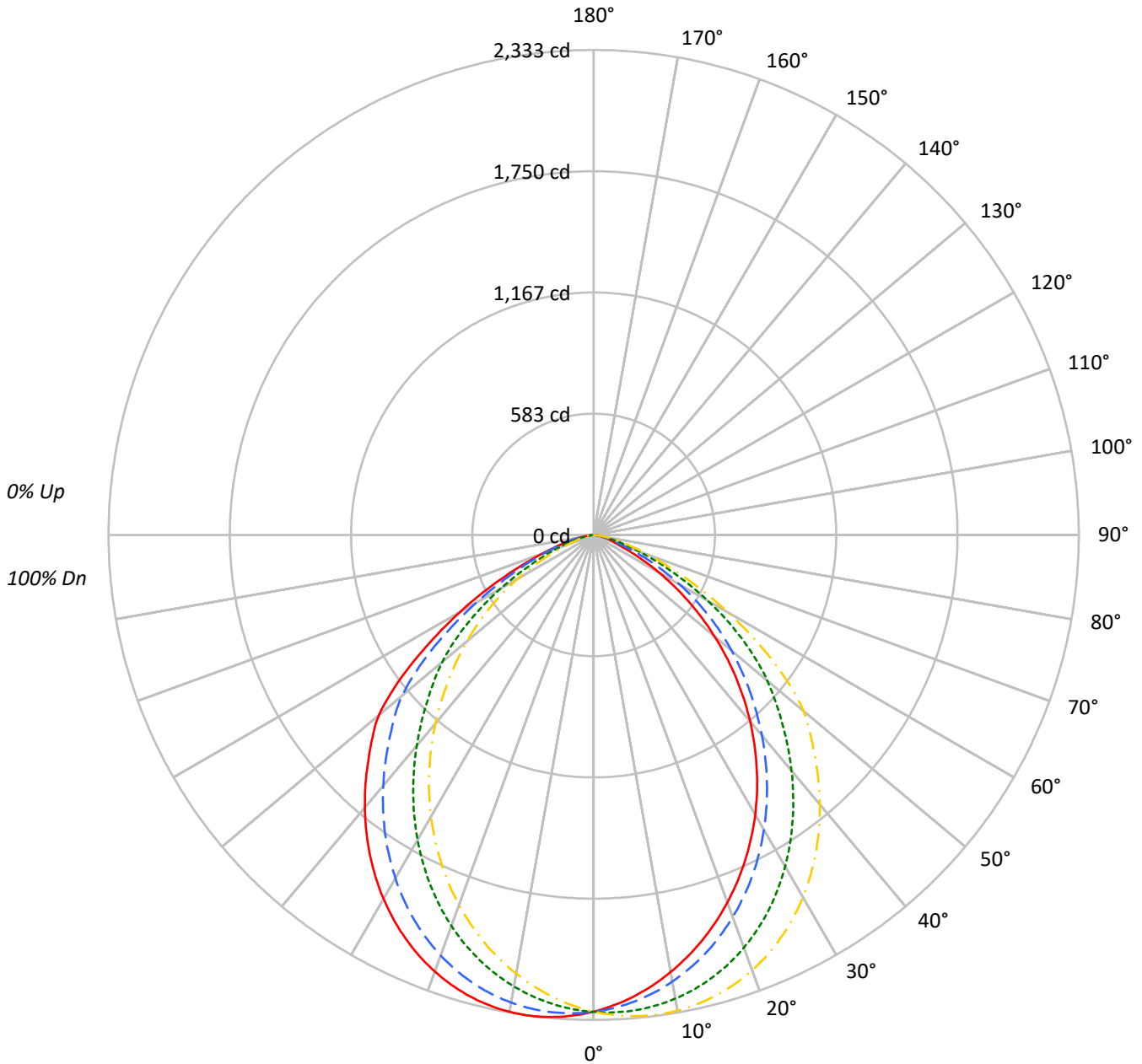
Input Watts (W): 38.5
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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	105	101	99	100	98	95	97	94	93	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	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66					66			
4	87	76	68	62	85	75	68	62	72	66	61	70	65	60	68	63	60	58					58			
5	80	69	61	55	78	68	60	54	66	59	54	64	58	53	62	57	53	51					51			
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45					45			
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40					40			
8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36					36			
9	61	48	40	35	59	47	40	35	46	40	35	45	39	35	44	39	35	33					33			
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30					30			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	125757	125757	125757	125757
5°	122600	126304	128120	124664
10°	118835	126083	129690	122804
15°	114552	125114	130443	120177
20°	109758	123252	130369	116735
25°	104365	120430	129570	112386
30°	98332	116569	127944	107232
35°	91470	111695	125554	101261
40°	83714	105941	122494	94699
45°	74884	99468	118803	87784
50°	64748	92927	114887	81038
55°	53188	83189	100556	70669
60°	40205	69490	81375	56684
65°	26397	53313	60888	41820
70°	17503	37330	42042	28162
75°	14001	24061	29187	17834
80°	10292	14743	17553	10544
85°	5598	8617	3774	6101

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 157.5°
 Vertical Angle: 45°
 Luminance: 119617 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	216.1	4.4
10°-20°	608.1	12.5
20°-30°	887.4	18.2
30°-40°	1004.3	20.6
40°-50°	950.2	19.5
50°-60°	721.4	14.8
60°-70°	361.4	7.4
70°-80°	114.5	2.3
80°-90°	17.4	0.4
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	1711.5	35.1
0°-40°	2715.8	55.6
0°-60°	4387.5	89.9
0°-90°	4880.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4880.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2294	2294	2294	2294	2294	
5°	2228	2295	2328	2265	2228	210
15°	2018	2204	2298	2118	2018	567
25°	1725	1991	2142	1858	1725	793
35°	1367	1669	1876	1513	1367	853
45°	966	1283	1532	1132	966	743
55°	556	870	1052	739	556	497
65°	204	411	469	322	204	211
75°	66	114	138	84	66	71
85°	9	14	6	10	9	12
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°	2294.0	2294.0	2294.0	2294.0	2294.0	2294.0	2294.0	2294.0	2294.0	2294.0	2294.0
0.5°	2288.3	2290.0	2291.6	2292.8	2296.4	2296.8	2297.6	2298.0	2298.4	2298.4	2296.8
1°	2282.7	2285.5	2288.3	2292.0	2297.6	2299.6	2301.6	2302.8	2302.8	2302.0	2298.8
1.5°	2277.1	2280.7	2285.1	2290.4	2298.4	2302.4	2305.7	2307.3	2307.3	2305.3	2300.8
2°	2271.0	2275.4	2281.5	2288.7	2298.8	2304.5	2308.9	2311.3	2310.9	2308.5	2302.0
2.5°	2264.2	2269.8	2277.5	2286.7	2298.8	2306.5	2312.1	2314.9	2314.9	2311.3	2303.7
3°	2257.7	2264.2	2273.0	2284.3	2298.8	2308.1	2315.3	2318.6	2317.8	2313.3	2304.5
3.5°	2250.9	2258.1	2268.6	2281.5	2298.4	2309.7	2317.8	2321.8	2321.0	2315.3	2304.9
4°	2243.2	2251.7	2263.8	2278.7	2297.6	2310.5	2320.2	2324.6	2323.8	2317.4	2305.3
4.5°	2236.0	2244.8	2258.5	2275.4	2296.8	2311.3	2322.2	2327.4	2326.2	2318.6	2305.3
5°	2227.9	2238.0	2252.9	2271.8	2295.2	2311.7	2323.8	2329.4	2328.2	2319.8	2304.9
5.5°	2219.8	2230.3	2247.2	2267.8	2293.6	2312.1	2325.0	2331.5	2329.8	2320.6	2304.5
6°	2211.4	2222.7	2240.8	2263.8	2291.6	2311.7	2326.2	2333.1	2331.1	2321.0	2303.2
6.5°	2202.9	2215.0	2234.7	2259.3	2289.5	2311.3	2327.0	2334.3	2332.3	2321.0	2302.0
7°	2194.1	2206.9	2227.9	2254.5	2286.7	2310.5	2327.4	2335.1	2332.7	2321.0	2300.4
7.5°	2184.8	2198.5	2221.0	2249.3	2283.9	2309.3	2327.4	2335.5	2333.1	2320.2	2298.4
8°	2175.1	2189.6	2213.8	2243.6	2280.7	2308.1	2327.4	2335.9	2333.1	2319.4	2296.4
8.5°	2165.4	2180.8	2206.1	2238.0	2277.5	2306.5	2327.0	2335.9	2332.7	2318.2	2293.6
9°	2155.8	2171.9	2198.1	2231.9	2273.4	2304.9	2325.8	2335.5	2332.3	2316.9	2290.8
9.5°	2145.3	2162.2	2190.0	2225.9	2269.4	2302.4	2325.0	2334.7	2331.1	2314.9	2287.9
10°	2134.8	2152.5	2182.0	2219.0	2265.0	2300.0	2323.4	2333.5	2329.8	2312.9	2284.3
10.5°	2124.3	2142.5	2173.1	2212.2	2260.5	2296.8	2321.8	2332.3	2328.2	2310.1	2280.7
11°	2113.5	2132.4	2163.8	2204.9	2255.3	2293.6	2319.8	2330.7	2325.8	2307.7	2276.7
11.5°	2102.2	2121.9	2154.6	2197.3	2250.1	2290.4	2317.4	2328.2	2323.8	2304.5	2272.2
12°	2090.9	2111.0	2145.3	2189.2	2244.4	2286.3	2314.5	2326.2	2321.0	2301.2	2267.8
12.5°	2079.2	2100.2	2135.2	2181.6	2238.8	2282.3	2311.3	2323.4	2318.2	2297.6	2262.6
13°	2067.5	2088.9	2125.1	2172.7	2232.3	2277.9	2308.1	2320.2	2314.9	2293.6	2257.3
13.5°	2055.4	2077.6	2114.7	2164.2	2225.9	2273.4	2304.5	2316.9	2310.9	2289.1	2252.1
14°	2043.3	2065.9	2104.2	2155.4	2219.0	2268.2	2300.4	2313.3	2307.3	2284.3	2246.0
14.5°	2030.9	2054.2	2093.3	2146.1	2211.8	2263.0	2296.0	2309.3	2302.8	2279.5	2240.0
15°	2018.4	2041.7	2082.0	2136.0	2204.5	2256.9	2291.6	2304.9	2298.4	2274.2	2233.5
15.5°	2005.5	2029.2	2070.3	2126.4	2196.5	2251.3	2286.7	2300.4	2293.6	2268.6	2226.7
16°	1992.6	2016.8	2059.1	2115.9	2188.4	2244.8	2281.5	2295.2	2287.9	2262.6	2219.4
16.5°	1979.3	2003.9	2047.0	2105.8	2180.4	2238.4	2275.8	2290.0	2282.7	2256.5	2212.2
17°	1965.6	1991.0	2034.5	2094.5	2171.9	2231.5	2270.2	2284.7	2276.7	2250.1	2204.5
17.5°	1952.3	1977.7	2022.0	2083.6	2162.6	2224.3	2263.8	2278.7	2270.6	2243.2	2196.9
18°	1938.2	1964.0	2009.5	2072.4	2153.0	2217.0	2257.3	2272.2	2263.8	2236.0	2188.4
18.5°	1924.5	1950.7	1996.2	2060.7	2143.7	2209.0	2250.5	2265.8	2257.3	2228.3	2179.9
19°	1910.0	1936.6	1983.3	2048.6	2133.6	2200.9	2243.2	2258.9	2250.1	2220.6	2171.1
19.5°	1895.5	1922.9	1969.6	2036.1	2123.5	2192.4	2236.0	2251.7	2242.4	2213.0	2161.8
20°	1881.4	1908.4	1956.3	2024.0	2112.7	2183.6	2228.7	2244.0	2234.7	2204.5	2152.5
20.5°	1866.1	1893.9	1942.2	2011.1	2101.8	2174.3	2220.6	2236.4	2226.7	2195.7	2142.5
21°	1851.1	1878.9	1928.1	1998.2	2090.9	2165.4	2212.2	2228.3	2218.6	2186.8	2132.8



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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°	1805.6	1833.8	1884.2	1957.1	2055.8	2135.2	2185.2	2202.5	2192.0	2158.6	2101.4
23°	1789.9	1818.1	1869.3	1943.0	2043.3	2124.7	2175.9	2193.2	2182.4	2148.5	2090.1
23.5°	1774.2	1802.8	1854.4	1928.5	2030.9	2113.9	2166.2	2183.6	2172.7	2138.0	2078.8
24°	1758.1	1787.1	1838.7	1914.0	2018.0	2102.6	2155.8	2173.9	2163.0	2127.2	2067.1
24.5°	1741.5	1771.0	1822.5	1898.7	2004.7	2090.9	2145.3	2163.8	2152.1	2116.3	2055.0
25°	1725.4	1754.4	1806.8	1883.8	1991.0	2079.6	2134.8	2153.4	2142.1	2105.4	2042.9
25.5°	1708.9	1738.3	1791.1	1868.5	1977.3	2067.1	2123.9	2142.9	2130.8	2094.1	2030.5
26°	1692.4	1721.8	1775.0	1852.8	1963.6	2054.6	2112.7	2132.0	2119.9	2082.0	2018.0
26.5°	1675.5	1705.3	1757.7	1836.6	1949.1	2042.1	2101.0	2120.3	2108.2	2070.3	2005.1
27°	1658.5	1688.4	1741.5	1820.9	1934.1	2029.2	2088.9	2109.0	2096.9	2057.9	1991.8
27.5°	1641.2	1671.0	1724.6	1804.4	1919.6	2015.9	2077.2	2097.3	2084.9	2045.8	1978.5
28°	1623.9	1653.7	1707.7	1787.9	1904.3	2002.2	2064.7	2085.3	2072.4	2033.3	1964.4
28.5°	1606.6	1636.4	1690.0	1771.0	1889.0	1988.5	2051.8	2072.8	2059.9	2020.0	1950.7
29°	1589.2	1619.4	1672.6	1754.4	1873.7	1974.8	2038.9	2060.7	2047.0	2006.7	1936.6
29.5°	1571.5	1601.7	1655.3	1737.5	1857.6	1959.9	2026.0	2047.4	2034.1	1993.4	1922.1
30°	1553.4	1583.6	1638.0	1720.2	1841.5	1945.8	2012.3	2034.5	2021.2	1979.7	1907.2
30.5°	1535.2	1565.9	1619.4	1702.5	1825.4	1930.5	1998.2	2021.2	2007.9	1965.6	1892.2
31°	1517.1	1547.7	1601.7	1685.1	1808.8	1915.2	1984.1	2007.9	1994.2	1951.5	1877.3
31.5°	1499.0	1529.6	1583.2	1667.0	1791.9	1899.5	1970.0	1993.8	1979.7	1937.0	1861.6
32°	1480.4	1511.5	1565.0	1648.9	1774.6	1884.6	1955.5	1979.7	1966.0	1922.5	1846.3
32.5°	1461.9	1492.9	1546.5	1631.1	1757.7	1868.5	1941.0	1965.2	1951.9	1907.6	1830.6
33°	1443.0	1474.0	1528.4	1613.0	1740.7	1851.9	1925.7	1950.7	1937.0	1892.6	1814.9
33.5°	1424.4	1455.4	1509.4	1594.1	1723.0	1835.8	1910.4	1936.2	1922.1	1877.3	1799.2
34°	1405.5	1436.9	1490.9	1575.9	1705.3	1819.3	1894.7	1921.3	1906.7	1861.6	1782.2
34.5°	1386.1	1418.0	1471.6	1557.0	1686.7	1802.0	1878.9	1905.5	1891.4	1845.9	1765.7
35°	1366.8	1398.6	1453.0	1538.1	1669.0	1785.1	1863.2	1890.2	1876.1	1830.2	1749.2
35.5°	1347.9	1379.7	1433.3	1519.5	1650.9	1768.1	1846.7	1874.5	1860.8	1814.5	1732.7
36°	1328.5	1360.4	1414.7	1500.6	1632.3	1750.4	1830.6	1858.8	1845.1	1798.0	1715.3
36.5°	1309.2	1341.0	1395.4	1481.2	1613.8	1732.7	1814.1	1842.7	1828.6	1782.2	1698.4
37°	1289.4	1321.3	1375.3	1461.9	1594.9	1714.9	1797.1	1826.2	1812.5	1765.3	1681.1
37.5°	1269.7	1301.9	1356.3	1442.6	1575.9	1696.8	1779.8	1809.6	1795.9	1748.8	1663.4
38°	1249.5	1282.2	1337.0	1423.2	1557.4	1678.7	1762.9	1793.1	1779.4	1731.5	1645.6
38.5°	1230.2	1262.8	1317.2	1403.9	1538.1	1660.1	1745.2	1776.2	1762.9	1714.9	1628.7
39°	1210.9	1242.7	1297.9	1384.1	1519.1	1641.6	1727.8	1759.3	1745.6	1697.6	1610.6
39.5°	1190.3	1223.3	1278.2	1364.8	1500.2	1623.1	1710.1	1741.9	1729.0	1680.3	1592.9
40°	1169.8	1203.2	1258.8	1345.0	1480.4	1604.1	1692.0	1724.6	1711.7	1663.0	1574.3
40.5°	1150.0	1183.1	1238.3	1325.3	1460.3	1585.6	1673.8	1706.9	1694.0	1645.6	1556.6
41°	1129.9	1162.9	1218.9	1305.6	1440.9	1565.9	1655.3	1689.2	1676.7	1627.5	1538.1
41.5°	1109.3	1143.2	1198.8	1285.4	1422.0	1546.9	1637.2	1671.4	1659.3	1610.2	1519.9
42°	1088.8	1122.6	1179.0	1266.1	1401.5	1527.6	1618.6	1653.3	1641.2	1592.0	1501.4
42.5°	1068.6	1102.9	1159.7	1246.3	1382.5	1508.6	1600.1	1635.2	1623.5	1574.3	1482.8
43°	1048.5	1082.7	1139.5	1226.6	1362.4	1489.3	1581.2	1617.0	1605.3	1555.8	1464.3
43.5°	1027.9	1062.6	1119.8	1206.8	1343.0	1470.0	1562.6	1598.9	1587.6	1537.6	1445.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	965.9	1001.7	1060.2	1147.6	1283.0	1411.1	1505.0	1542.9	1532.4	1482.8	1389.8
45.5°	945.3	982.0	1041.2	1128.3	1264.5	1391.4	1486.1	1524.4	1514.3	1464.3	1371.2
46°	924.8	961.4	1021.1	1108.5	1243.9	1371.2	1466.7	1505.8	1495.7	1446.6	1353.1
46.5°	903.4	941.7	1001.7	1089.2	1224.2	1352.3	1448.2	1487.7	1478.4	1428.9	1335.4
47°	882.5	921.1	982.0	1069.8	1204.4	1333.0	1429.7	1469.6	1461.1	1411.5	1317.6
47.5°	862.3	901.0	962.6	1050.5	1185.9	1314.0	1411.5	1452.2	1443.4	1393.8	1299.5
48°	841.8	881.2	942.9	1031.1	1166.1	1295.5	1393.0	1434.5	1426.0	1376.5	1282.2
48.5°	821.2	861.1	923.6	1012.6	1147.6	1276.9	1375.3	1416.8	1408.3	1358.3	1263.6
49°	800.3	841.4	904.2	993.7	1128.3	1257.6	1356.3	1398.2	1389.8	1339.0	1244.7
49.5°	780.1	821.6	885.3	974.7	1108.9	1238.7	1337.4	1379.7	1370.0	1318.4	1223.8
50°	759.2	801.5	866.3	955.0	1089.6	1218.9	1316.8	1357.9	1347.1	1295.9	1202.8
50.5°	738.6	781.7	846.6	936.5	1070.2	1197.6	1294.3	1334.6	1322.9	1270.5	1179.0
51°	717.2	762.4	827.7	916.7	1049.7	1175.0	1270.9	1308.8	1294.3	1243.9	1155.3
51.5°	697.5	742.6	808.7	897.0	1028.3	1152.8	1246.3	1281.8	1266.9	1216.5	1129.1
52°	677.0	722.9	789.4	877.2	1007.4	1128.7	1219.7	1252.8	1238.3	1187.9	1102.1
52.5°	656.8	703.5	770.4	856.7	984.8	1104.1	1192.3	1222.9	1207.6	1158.1	1074.3
53°	636.7	684.2	751.1	836.5	961.8	1079.1	1163.7	1192.7	1178.2	1128.3	1046.9
53.5°	616.5	664.9	731.4	816.0	939.7	1053.3	1134.7	1162.5	1146.4	1097.6	1018.2
54°	596.0	645.5	712.0	794.6	916.3	1026.7	1106.1	1132.3	1114.6	1067.0	990.0
54.5°	576.2	626.2	692.7	774.5	894.1	1000.9	1076.3	1100.9	1083.1	1036.4	961.4
55°	556.5	607.2	673.3	754.3	870.4	974.3	1046.9	1070.2	1052.1	1005.8	933.2
55.5°	536.3	588.3	653.2	733.4	847.4	947.7	1016.2	1039.2	1019.9	974.3	903.8
56°	517.4	569.0	633.8	712.4	823.6	919.9	986.4	1007.8	987.6	942.5	875.2
56.5°	497.6	549.6	614.5	691.5	800.3	892.5	955.8	976.3	956.6	911.9	846.2
57°	478.3	530.7	594.8	670.5	776.1	865.1	926.4	944.5	924.8	881.6	818.0
57.5°	459.0	511.7	575.0	649.6	753.1	838.1	895.8	913.5	893.7	850.2	789.0
58°	440.4	493.2	556.1	628.6	728.9	810.3	867.1	882.5	863.5	819.6	760.8
58.5°	421.9	474.3	536.3	608.0	705.2	783.3	836.9	851.8	832.5	789.8	733.0
59°	402.9	456.1	517.4	586.7	681.0	755.9	807.1	821.2	801.9	760.8	704.8
59.5°	384.8	437.6	498.0	566.1	658.0	728.9	778.1	790.6	771.6	730.9	677.0
60°	366.7	419.5	479.5	546.0	633.8	702.3	749.1	760.8	742.2	702.3	650.8
60.5°	348.5	400.9	460.6	525.4	610.5	675.3	719.7	731.4	713.2	674.1	623.8
61°	330.8	383.6	441.6	504.9	586.7	649.6	691.5	702.3	684.2	647.1	598.0
61.5°	313.9	365.9	423.5	484.7	564.1	624.2	663.7	673.3	656.0	620.1	573.0
62°	296.6	348.5	405.8	465.0	540.8	599.2	637.1	645.5	628.2	593.9	548.4
62.5°	279.6	331.2	387.2	445.3	518.6	573.8	608.5	617.3	600.8	568.2	523.8
63°	263.5	314.7	369.5	425.5	496.0	548.4	581.9	589.9	574.6	542.4	500.1
63.5°	247.8	297.8	351.8	406.2	474.3	525.0	555.7	563.3	547.2	518.2	477.5
64°	232.1	281.7	334.0	386.8	452.5	500.5	531.1	537.5	520.2	495.6	455.7
64.5°	217.6	265.9	316.7	367.9	431.6	477.1	505.7	511.7	494.4	472.3	434.4
65°	203.5	250.6	299.8	349.4	411.0	454.5	481.1	487.6	469.4	450.1	413.4
65.5°	189.4	234.9	282.9	331.6	391.3	432.4	457.7	463.4	443.6	427.9	393.7
66°	176.5	220.4	265.9	313.1	371.5	410.2	435.2	439.6	419.5	407.0	374.3



TEST NUMBER: P776348

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	142.6	177.7	218.4	261.9	315.9	351.0	371.1	374.3	354.6	349.4	322.4
68°	135.4	164.4	203.5	246.2	297.4	332.4	352.6	355.0	335.3	330.8	305.0
68.5°	127.7	151.9	189.0	230.1	280.9	313.9	334.0	336.1	315.5	312.3	287.7
69°	120.5	141.8	175.3	215.2	264.3	295.4	315.5	317.1	295.8	294.2	272.4
69.5°	112.8	132.2	162.0	199.9	248.2	277.6	296.6	298.2	278.4	277.6	257.1
70°	109.2	122.5	149.9	186.6	232.9	261.5	280.0	282.1	262.3	261.9	242.6
70.5°	105.2	112.4	140.2	173.3	218.4	246.2	264.7	266.3	247.0	247.4	229.3
71°	100.7	102.8	130.6	160.4	204.7	231.3	249.4	251.0	232.5	232.9	216.0
71.5°	96.3	98.3	120.5	148.7	191.0	216.8	234.5	236.1	218.4	219.2	203.1
72°	91.5	94.3	110.8	139.0	178.1	203.9	220.8	222.8	205.1	205.9	191.0
72.5°	87.0	90.3	101.1	129.3	165.6	190.6	207.9	209.5	192.6	193.8	179.3
73°	82.6	85.8	93.5	119.7	154.3	178.5	195.4	197.4	180.5	181.3	168.0
73.5°	78.2	81.8	86.6	109.6	143.4	166.8	182.9	185.4	169.6	170.4	157.6
74°	74.1	77.8	80.6	99.9	133.0	155.9	172.1	174.1	158.4	159.6	147.5
74.5°	69.7	73.7	75.4	92.3	122.9	145.1	161.2	163.2	147.9	149.1	137.8
75°	66.1	69.7	70.5	85.0	113.6	135.0	151.1	152.7	137.8	139.4	128.1
75.5°	62.1	66.1	66.5	78.2	105.2	125.7	141.0	143.0	128.1	129.7	119.3
76°	58.4	62.1	62.5	72.1	96.7	116.5	131.4	133.4	118.5	120.5	110.8
76.5°	54.8	58.4	59.2	66.1	89.1	108.0	122.5	124.1	109.6	112.0	102.8
77°	51.2	54.8	55.6	60.8	81.8	99.9	113.6	115.6	100.7	103.6	95.1
77.5°	48.0	51.6	52.4	56.0	74.9	92.3	105.6	107.2	92.7	95.5	87.8
78°	44.3	48.0	49.2	51.6	68.5	85.0	97.5	99.1	84.6	87.8	80.6
78.5°	41.5	44.7	45.9	47.1	62.5	77.8	89.9	91.5	76.6	81.0	73.7
79°	38.3	41.5	43.1	43.1	56.8	71.3	82.6	83.8	69.3	73.7	67.3
79.5°	35.5	38.3	40.3	39.5	51.6	64.9	75.8	77.0	62.5	67.3	61.2
80°	32.6	35.5	37.5	36.3	46.7	58.8	68.9	70.1	55.6	60.8	55.2
80.5°	29.8	32.6	34.7	33.0	42.3	53.2	62.5	63.7	48.8	54.8	49.6
81°	27.0	29.8	31.8	30.2	38.3	48.0	56.4	57.6	43.1	49.2	44.3
81.5°	24.6	27.4	29.4	27.8	34.7	43.1	50.4	51.6	37.9	43.9	39.9
82°	22.2	24.6	27.0	25.4	31.0	38.7	44.7	46.3	32.2	39.5	35.5
82.5°	19.7	22.2	24.6	23.0	27.4	34.7	40.3	41.5	26.6	35.1	31.0
83°	17.3	19.7	22.2	21.0	23.8	30.6	35.9	37.1	21.4	30.6	26.6
83.5°	14.9	17.3	19.7	18.9	21.0	26.6	31.4	32.6	16.9	25.8	22.2
84°	12.9	14.9	17.7	16.9	18.1	22.6	26.6	27.8	12.5	21.4	18.9
84.5°	10.9	12.9	15.7	14.9	15.7	19.3	22.2	23.4	8.9	17.7	15.7
85°	8.9	10.9	13.7	13.3	13.7	16.1	18.5	18.9	6.0	14.5	12.9
85.5°	6.9	8.9	12.1	11.7	11.7	13.7	15.3	15.3	4.0	11.3	10.1
86°	5.2	7.3	10.1	10.1	9.7	10.9	12.5	11.7	2.8	8.5	7.7
86.5°	4.4	5.6	8.1	8.1	8.1	8.9	9.7	8.9	2.4	6.0	5.6
87°	3.2	4.4	6.4	6.4	6.4	6.9	7.3	6.4	1.6	4.0	4.0
87.5°	2.4	3.2	4.8	4.8	5.2	5.2	5.2	4.4	1.2	2.4	2.4
88°	1.6	2.4	3.2	3.6	4.0	3.6	3.2	2.4	0.8	1.2	1.2
88.5°	0.8	1.2	2.0	2.0	2.4	2.0	1.6	1.2	0.4	0.4	0.4



TEST NUMBER: P776348

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-4000K

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: P776348

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2294.0	2294.0	2294.0	2294.0	2294.0	2294.0
0.5°	2294.4	2293.6	2290.4	2288.3	2287.5	2288.3
1°	2294.8	2291.6	2286.3	2283.5	2281.9	2282.7
1.5°	2294.4	2289.1	2282.7	2277.9	2275.8	2277.1
2°	2294.4	2286.7	2278.3	2272.2	2269.4	2271.0
2.5°	2293.6	2283.9	2273.4	2266.6	2263.0	2264.2
3°	2292.8	2280.7	2268.6	2260.1	2256.1	2257.7
3.5°	2291.6	2277.1	2263.4	2253.7	2249.3	2250.9
4°	2290.0	2273.4	2258.1	2246.8	2242.0	2243.2
4.5°	2287.9	2269.4	2252.5	2239.6	2233.9	2236.0
5°	2285.9	2265.4	2246.4	2232.3	2225.9	2227.9
5.5°	2283.5	2260.5	2240.0	2224.7	2217.8	2219.8
6°	2280.7	2255.7	2233.1	2216.6	2209.4	2211.4
6.5°	2277.5	2250.5	2226.3	2208.6	2200.5	2202.9
7°	2274.2	2245.2	2219.4	2200.1	2191.2	2194.1
7.5°	2270.2	2239.2	2211.8	2191.2	2182.0	2184.8
8°	2266.6	2233.1	2204.1	2182.4	2172.7	2175.1
8.5°	2262.1	2227.1	2195.7	2173.1	2162.6	2165.4
9°	2257.7	2220.2	2187.6	2163.8	2152.5	2155.8
9.5°	2252.9	2213.0	2178.7	2153.8	2142.1	2145.3
10°	2247.6	2206.1	2169.9	2143.7	2131.6	2134.8
10.5°	2242.0	2198.5	2160.6	2133.6	2121.1	2124.3
11°	2236.4	2190.8	2151.3	2123.1	2110.2	2113.5
11.5°	2230.3	2182.4	2141.7	2112.3	2099.0	2102.2
12°	2224.3	2173.9	2131.6	2101.4	2087.3	2090.9
12.5°	2217.4	2165.4	2121.1	2089.7	2075.6	2079.2
13°	2210.6	2156.6	2110.6	2078.4	2063.9	2067.5
13.5°	2203.3	2146.9	2100.2	2066.7	2051.4	2055.4
14°	2195.7	2137.6	2088.9	2055.0	2039.3	2043.3
14.5°	2188.0	2127.6	2077.6	2042.9	2026.8	2030.9
15°	2179.5	2117.5	2066.3	2030.5	2013.9	2018.4
15.5°	2171.1	2107.4	2054.2	2017.6	2001.0	2005.5
16°	2162.6	2096.5	2042.1	2004.7	1988.1	1992.6
16.5°	2153.8	2085.7	2029.6	1991.8	1974.4	1979.3
17°	2144.5	2074.4	2017.2	1978.5	1961.1	1965.6
17.5°	2134.8	2063.1	2004.3	1964.8	1947.0	1952.3
18°	2124.7	2051.0	1991.4	1951.1	1933.3	1938.2
18.5°	2114.7	2038.9	1977.7	1937.0	1919.2	1924.5
19°	2104.2	2026.4	1964.4	1922.9	1904.7	1910.0
19.5°	2093.3	2013.9	1950.7	1908.4	1890.2	1895.5
20°	2082.4	2001.0	1936.6	1894.3	1875.7	1881.4
20.5°	2071.2	1988.1	1922.1	1879.3	1860.8	1866.1
21°	2059.5	1974.4	1907.6	1864.0	1845.5	1851.1



TEST NUMBER: P776348

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	2023.2	1932.9	1862.4	1818.1	1799.6	1805.6
23°	2010.3	1918.0	1847.1	1802.4	1783.8	1789.9
23.5°	1997.8	1903.9	1831.8	1786.7	1768.1	1774.2
24°	1984.5	1888.6	1815.7	1770.6	1751.6	1758.1
24.5°	1970.8	1873.7	1800.0	1754.4	1735.1	1741.5
25°	1957.1	1858.0	1783.4	1737.9	1719.0	1725.4
25.5°	1943.0	1842.7	1767.3	1721.0	1702.5	1708.9
26°	1928.9	1827.4	1750.4	1704.1	1685.5	1692.4
26.5°	1914.0	1810.8	1734.3	1687.5	1668.6	1675.5
27°	1899.5	1794.3	1717.0	1670.6	1651.7	1658.5
27.5°	1885.0	1778.2	1700.0	1653.3	1634.4	1641.2
28°	1869.7	1761.7	1682.3	1635.6	1616.6	1623.9
28.5°	1854.8	1745.2	1665.4	1618.2	1599.7	1606.6
29°	1838.7	1727.8	1647.7	1600.5	1581.6	1589.2
29.5°	1822.9	1710.9	1629.9	1582.8	1563.8	1571.5
30°	1806.8	1694.0	1612.2	1564.6	1545.7	1553.4
30.5°	1791.1	1676.3	1594.1	1546.5	1528.0	1535.2
31°	1774.6	1658.5	1575.5	1528.4	1509.4	1517.1
31.5°	1757.7	1640.8	1557.8	1509.8	1491.3	1499.0
32°	1740.7	1622.7	1539.3	1491.3	1472.4	1480.4
32.5°	1724.2	1604.9	1520.7	1472.8	1454.2	1461.9
33°	1706.9	1587.2	1502.2	1454.2	1435.3	1443.0
33.5°	1689.6	1568.7	1483.7	1435.3	1416.8	1424.4
34°	1672.2	1550.1	1464.7	1416.4	1397.8	1405.5
34.5°	1654.5	1531.6	1445.4	1397.4	1378.9	1386.1
35°	1636.8	1513.1	1426.4	1378.1	1359.1	1366.8
35.5°	1619.0	1494.1	1407.9	1358.7	1340.6	1347.9
36°	1601.3	1476.0	1388.6	1339.8	1321.3	1328.5
36.5°	1583.2	1456.7	1369.6	1320.5	1301.5	1309.2
37°	1564.6	1437.7	1349.9	1300.7	1282.2	1289.4
37.5°	1546.5	1419.2	1330.9	1281.4	1262.8	1269.7
38°	1528.0	1399.8	1311.2	1261.6	1243.1	1249.5
38.5°	1509.4	1380.5	1292.3	1242.3	1223.3	1230.2
39°	1490.9	1362.0	1272.9	1222.9	1203.6	1210.9
39.5°	1472.4	1342.6	1253.6	1203.2	1183.9	1190.3
40°	1453.4	1323.3	1233.8	1183.1	1163.7	1169.8
40.5°	1434.9	1304.3	1214.5	1163.7	1144.0	1150.0
41°	1416.0	1284.6	1195.1	1144.0	1123.4	1129.9
41.5°	1397.0	1265.7	1175.4	1124.2	1103.3	1109.3
42°	1378.1	1246.7	1156.1	1104.5	1083.5	1088.8
42.5°	1359.1	1227.8	1137.1	1084.7	1063.4	1068.6
43°	1340.6	1208.8	1117.8	1065.0	1043.2	1048.5
43.5°	1321.3	1189.1	1098.8	1045.2	1023.1	1027.9

TEST NUMBER: P776348

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1264.9	1132.3	1040.8	986.4	962.6	965.9
45.5°	1245.9	1113.3	1021.9	966.7	942.1	945.3
46°	1227.4	1095.2	1003.3	947.7	921.9	924.8
46.5°	1209.2	1077.1	984.8	928.0	901.8	903.4
47°	1191.1	1058.9	965.9	908.6	881.6	882.5
47.5°	1173.0	1040.4	947.3	889.3	861.9	862.3
48°	1155.7	1023.5	929.2	870.0	841.8	841.8
48.5°	1137.9	1005.4	910.7	851.0	821.2	821.2
49°	1119.4	987.2	892.9	832.5	801.5	800.3
49.5°	1099.6	969.1	875.2	813.6	781.7	780.1
50°	1079.5	950.2	857.1	794.6	761.6	759.2
50.5°	1058.1	930.4	838.1	776.1	742.2	738.6
51°	1036.4	910.7	820.0	757.5	722.1	717.2
51.5°	1013.8	890.1	801.5	739.0	702.7	697.5
52°	990.8	869.6	782.5	720.9	683.4	677.0
52.5°	966.7	848.2	763.2	701.9	663.7	656.8
53°	942.9	826.8	743.8	683.4	644.7	636.7
53.5°	917.5	805.1	724.5	664.5	625.4	616.5
54°	892.1	783.3	704.8	646.3	606.4	596.0
54.5°	866.7	761.6	685.0	627.4	587.5	576.2
55°	841.8	739.4	664.9	608.5	569.0	556.5
55.5°	815.6	716.4	645.1	589.5	549.6	536.3
56°	789.8	694.3	625.0	571.0	531.1	517.4
56.5°	764.4	672.1	605.2	552.0	512.5	497.6
57°	739.0	649.6	584.7	533.5	494.0	478.3
57.5°	713.2	627.0	564.5	514.2	475.5	459.0
58°	688.2	604.8	544.8	496.0	457.7	440.4
58.5°	663.7	582.7	525.0	477.1	439.2	421.9
59°	638.3	560.5	505.3	458.6	421.1	402.9
59.5°	614.1	538.3	485.6	440.4	403.4	384.8
60°	589.9	517.0	466.2	422.3	385.6	366.7
60.5°	566.1	495.6	446.9	404.2	367.9	348.5
61°	542.4	474.7	427.9	386.4	350.6	330.8
61.5°	519.4	454.5	409.0	369.1	333.6	313.9
62°	497.6	434.4	390.5	351.8	317.1	296.6
62.5°	475.1	414.6	372.3	334.4	300.6	279.6
63°	453.3	394.9	354.6	317.5	284.5	263.5
63.5°	432.0	376.4	336.9	301.0	268.4	247.8
64°	411.4	357.8	319.5	284.5	253.1	232.1
64.5°	391.7	340.1	302.6	268.4	237.7	217.6
65°	372.3	322.4	286.1	252.6	223.6	203.5
65.5°	354.2	305.4	270.0	236.9	209.1	189.4
66°	336.5	288.5	253.9	222.0	195.4	176.5



TEST NUMBER: P776348

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	284.9	242.2	209.5	179.3	156.7	142.6
68°	269.2	227.7	195.4	166.8	145.5	135.4
68.5°	254.3	214.0	182.5	154.3	136.6	127.7
69°	239.8	200.7	169.2	142.2	128.1	120.5
69.5°	226.1	188.2	157.1	133.0	119.7	112.8
70°	212.8	175.7	146.3	123.7	110.8	109.2
70.5°	200.3	164.0	137.0	114.4	102.3	105.2
71°	187.8	153.1	127.7	105.2	98.3	100.7
71.5°	176.5	142.2	118.5	97.9	94.7	96.3
72°	165.2	133.4	109.2	91.5	90.7	91.5
72.5°	154.7	124.5	99.9	85.4	86.2	87.0
73°	144.3	115.6	92.3	79.8	81.8	82.6
73.5°	134.6	106.4	85.4	74.9	77.8	78.2
74°	125.3	98.7	79.0	70.9	73.7	74.1
74.5°	116.9	91.1	72.9	67.3	69.7	69.7
75°	108.4	84.2	67.7	64.1	66.1	66.1
75.5°	100.3	77.4	62.5	60.4	62.1	62.1
76°	92.7	71.3	58.0	57.2	58.4	58.4
76.5°	85.8	65.3	53.6	54.0	54.8	54.8
77°	79.0	59.6	49.6	50.8	51.6	51.2
77.5°	72.5	54.8	45.9	47.5	48.4	48.0
78°	66.1	49.6	42.3	44.7	45.1	44.3
78.5°	60.4	45.1	39.1	41.9	41.9	41.5
79°	54.8	41.1	36.3	39.1	38.7	38.3
79.5°	50.0	37.1	33.4	36.3	35.9	35.5
80°	45.1	33.4	31.0	33.4	33.0	32.6
80.5°	40.3	30.2	29.0	31.0	30.2	29.8
81°	36.7	27.0	26.6	28.6	27.4	27.0
81.5°	33.0	24.2	24.6	26.2	25.0	24.6
82°	29.0	21.8	22.2	23.8	22.2	22.2
82.5°	25.4	19.3	20.1	21.4	19.7	19.7
83°	21.4	16.9	18.1	19.3	17.3	17.3
83.5°	18.5	14.9	16.1	17.3	14.9	14.9
84°	15.7	12.9	14.5	15.3	13.3	12.9
84.5°	13.3	11.3	12.5	13.3	11.3	10.9
85°	10.9	9.7	10.9	11.3	9.3	8.9
85.5°	8.9	7.7	8.9	9.7	7.3	6.9
86°	6.9	6.4	7.3	7.7	6.0	5.2
86.5°	5.2	4.8	5.6	6.0	4.8	4.4
87°	3.6	3.6	4.0	4.4	3.6	3.2
87.5°	2.4	2.0	2.4	2.8	2.4	2.4
88°	1.6	0.8	1.2	1.6	1.6	1.6
88.5°	0.4	0.4	0.4	0.4	0.8	0.8



TEST NUMBER: P776348

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRH-HCD61TRLWW-4000lm-4000K

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°	1836.2	1864.0	1913.6	1984.5	2079.2	2155.4	2203.3	2220.2	2210.2	2177.9	2122.3
22°	1820.9	1849.1	1899.1	1970.8	2067.9	2145.3	2194.9	2211.4	2200.9	2167.9	2111.8



44°	1006.6	1042.0	1100.0	1187.1	1322.9	1449.8	1543.3	1580.0	1569.1	1519.5	1427.2
44.5°	986.4	1021.9	1080.3	1167.7	1303.1	1430.5	1524.4	1561.4	1550.9	1501.4	1408.7



66.5°	164.0	205.9	249.8	295.8	353.0	389.2	413.0	417.1	396.1	386.0	357.0
67°	152.3	191.8	234.1	278.4	334.4	369.5	392.1	395.3	374.3	367.5	339.7



89°	0.4	0.4	0.8	0.8	1.6	1.2	0.8	0.4	0.0	0.0	0.0
89.5°	0.0	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0

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21.5°	2047.8	1960.7	1893.0	1848.7	1830.2	1836.2
22°	2035.3	1947.0	1877.7	1833.8	1814.9	1820.9



44°	1302.3	1170.2	1079.1	1025.5	1002.5	1006.6
44.5°	1283.0	1151.2	1060.2	1005.8	982.8	986.4

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66.5°	318.3	272.8	238.5	206.7	182.1	164.0
67°	300.6	256.7	223.6	193.4	169.2	152.3

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

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Scaled Data Report



(END OF REPORT)