

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: P776298

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

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P776298
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-4000K
Description: 4 INCH ROUND MEDIUM LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT
Ballast/Driver: -

Summary

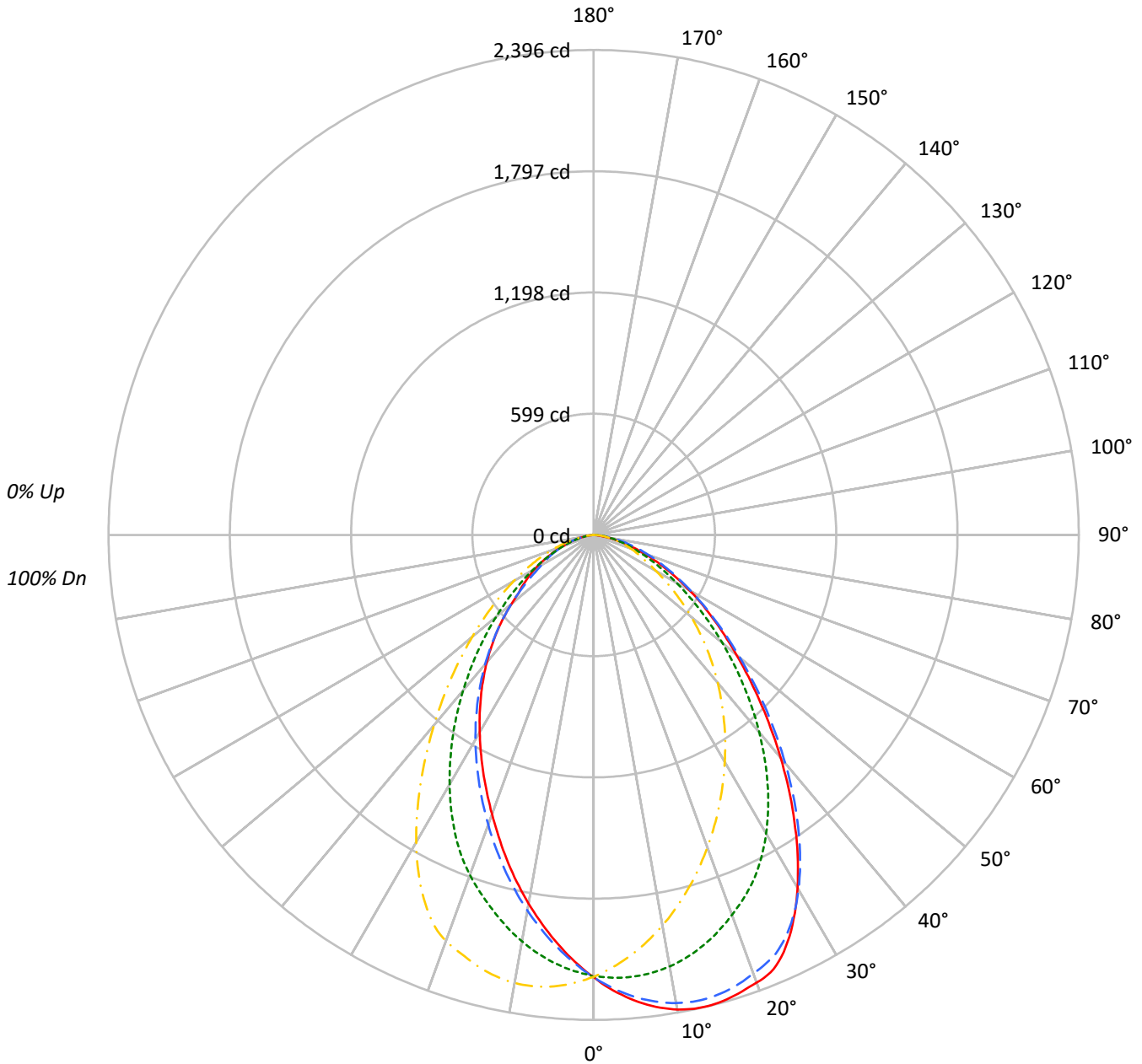
Lumens per Lamp: N/A
Luminaire Lumens: 4099.6 lumens
Efficiency: N/A
Efficacy: 106.5 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1.09 / 1.15
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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									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	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°	274806	274806	274806	274806
5°	291697	276778	256299	268680
10°	304233	276579	236337	260605
15°	311704	273425	216072	250208
20°	315276	267612	196564	239434
25°	311782	260279	179282	225245
30°	292658	247609	163614	206847
35°	265618	229944	149071	186159
40°	235963	208938	134829	164762
45°	206686	185881	119957	143273
50°	180183	162269	103865	122955
55°	157604	139656	92790	104462
60°	137478	118903	84017	87365
65°	116553	100711	72273	71796
70°	95817	84410	59462	57843
75°	73715	70554	48236	45464
80°	47036	58704	34208	33628
85°	14006	51261	13429	15739

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 22.5°
 Vertical Angle: 45°
 Luminance: 213717 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	204.9	5.0
10°-20°	567.7	13.8
20°-30°	804.3	19.6
30°-40°	840.4	20.5
40°-50°	707.4	17.3
50°-60°	502.3	12.3
60°-70°	304.7	7.4
70°-80°	139.8	3.4
80°-90°	28.1	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°	1576.9	38.5
0°-40°	2417.3	59.0
0°-60°	3627.0	88.5
0°-90°	4099.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4099.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2184	2184	2184	2184	2184	
5°	2309	2191	2029	2127	2309	223
15°	2392	2099	1658	1920	2392	675
25°	2245	1874	1291	1622	2245	1025
35°	1729	1497	970	1212	1729	1078
45°	1161	1044	674	805	1161	898
55°	718	636	423	476	718	646
65°	391	338	243	241	391	391
75°	152	145	99	94	152	164
85°	10	36	9	11	10	19
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°	2183.6	2183.6	2183.6	2183.6	2183.6	2183.6	2183.6	2183.6	2183.6	2183.6	2183.6
0.5°	2200.5	2200.5	2198.1	2193.3	2181.6	2177.2	2174.3	2172.3	2172.3	2171.9	2173.5
1°	2214.7	2214.3	2209.4	2201.0	2184.0	2174.3	2166.3	2159.8	2157.4	2156.6	2160.6
1.5°	2228.0	2228.0	2221.1	2208.6	2186.4	2170.7	2157.0	2146.9	2142.5	2141.7	2147.3
2°	2240.9	2240.9	2232.4	2215.5	2188.5	2167.1	2147.7	2133.6	2126.8	2126.0	2133.6
2.5°	2253.4	2253.8	2242.9	2222.3	2190.1	2162.7	2138.5	2119.9	2111.1	2110.3	2119.5
3°	2265.0	2265.9	2253.4	2228.4	2190.9	2158.2	2128.8	2106.2	2095.3	2094.1	2105.8
3.5°	2276.7	2277.5	2263.0	2234.0	2191.7	2153.0	2118.3	2092.1	2079.2	2077.6	2091.7
4°	2288.0	2289.2	2272.3	2239.6	2191.7	2147.7	2107.8	2077.6	2062.3	2061.1	2076.8
4.5°	2298.5	2300.1	2281.2	2244.9	2191.7	2141.7	2096.9	2062.7	2045.4	2044.9	2061.9
5°	2309.0	2310.6	2289.6	2249.3	2190.9	2135.6	2085.7	2047.8	2028.8	2027.6	2047.0
5.5°	2318.3	2320.7	2297.7	2253.4	2190.5	2129.2	2074.4	2032.5	2011.5	2009.9	2031.6
6°	2327.5	2330.3	2305.4	2257.4	2188.9	2122.3	2062.3	2017.1	1994.2	1992.5	2015.9
6.5°	2336.0	2339.2	2312.2	2260.6	2187.2	2115.5	2050.6	2001.8	1976.8	1975.2	2000.2
7°	2344.1	2347.7	2319.1	2263.4	2185.2	2107.8	2038.5	1985.7	1958.7	1957.9	1984.5
7.5°	2351.7	2355.7	2325.1	2265.9	2182.4	2099.8	2025.6	1969.6	1940.9	1939.7	1968.0
8°	2358.6	2363.0	2330.7	2267.5	2179.6	2091.7	2012.7	1953.4	1922.8	1921.6	1951.4
8.5°	2364.6	2369.9	2336.0	2269.1	2176.4	2082.8	1999.4	1936.9	1904.7	1903.5	1934.9
9°	2370.7	2376.3	2340.8	2270.3	2172.7	2074.4	1986.5	1920.4	1886.1	1884.9	1918.4
9.5°	2375.9	2381.9	2344.9	2271.1	2168.7	2065.1	1972.4	1903.5	1867.6	1866.8	1901.4
10°	2380.7	2387.2	2348.5	2271.1	2164.3	2055.4	1958.7	1886.5	1849.4	1847.8	1884.1
10.5°	2384.8	2391.6	2351.3	2270.7	2159.4	2045.4	1944.2	1869.6	1830.5	1828.9	1866.8
11°	2388.0	2395.6	2354.1	2270.3	2154.2	2035.3	1930.9	1851.9	1811.6	1810.3	1849.4
11.5°	2390.8	2398.9	2355.7	2268.7	2148.5	2025.2	1915.6	1834.5	1793.0	1791.8	1832.1
12°	2392.8	2401.7	2357.4	2267.1	2142.5	2014.3	1900.6	1816.8	1773.7	1772.5	1814.4
12.5°	2394.4	2403.7	2358.2	2265.0	2136.1	2003.4	1885.3	1799.5	1754.7	1753.5	1796.2
13°	2395.2	2405.3	2358.6	2262.2	2129.2	1992.1	1870.8	1781.3	1735.8	1734.2	1778.9
13.5°	2395.6	2406.1	2358.2	2259.0	2121.9	1980.5	1855.5	1764.0	1716.4	1715.2	1760.8
14°	2394.8	2406.5	2357.4	2255.4	2114.7	1968.4	1839.8	1745.4	1697.1	1695.5	1742.6
14.5°	2394.0	2406.1	2355.7	2251.3	2106.2	1956.3	1824.0	1727.3	1678.1	1676.1	1724.5
15°	2392.4	2404.9	2353.7	2246.5	2098.6	1944.2	1807.9	1708.8	1658.4	1657.2	1705.9
15.5°	2390.0	2403.3	2351.3	2241.7	2089.7	1931.3	1792.2	1690.6	1639.0	1637.8	1687.8
16°	2387.6	2400.9	2348.1	2236.0	2080.4	1918.4	1776.1	1672.5	1619.7	1618.1	1669.7
16.5°	2384.0	2398.1	2344.5	2230.0	2071.2	1905.1	1759.6	1654.3	1600.7	1598.7	1651.5
17°	2380.3	2394.8	2340.0	2223.5	2061.5	1892.2	1743.4	1635.8	1581.0	1579.4	1633.0
17.5°	2375.9	2391.2	2335.6	2216.7	2051.0	1878.1	1726.5	1617.3	1561.6	1560.4	1614.8
18°	2371.5	2386.8	2330.3	2209.4	2040.9	1864.4	1710.0	1598.7	1542.7	1540.7	1596.3
18.5°	2366.2	2381.9	2324.7	2201.8	2030.4	1850.2	1693.0	1579.8	1523.7	1521.7	1577.8
19°	2361.8	2376.7	2318.7	2194.1	2020.0	1836.5	1676.9	1561.2	1504.8	1502.4	1559.6
19.5°	2358.2	2371.9	2312.6	2185.6	2009.1	1822.4	1659.2	1543.1	1486.6	1483.8	1541.1
20°	2354.1	2367.8	2306.2	2177.2	1998.2	1808.3	1642.2	1524.5	1467.7	1464.9	1522.9
20.5°	2349.7	2363.4	2300.1	2169.1	1986.9	1793.8	1625.3	1506.0	1450.0	1446.7	1504.4
21°	2344.5	2358.6	2294.5	2161.0	1975.6	1779.3	1608.4	1488.3	1431.4	1428.2	1486.2



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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°	2322.3	2339.6	2273.5	2134.4	1940.5	1735.4	1556.4	1434.6	1378.2	1374.2	1431.8
23°	2309.8	2330.3	2265.0	2124.8	1928.0	1720.4	1539.5	1417.3	1360.1	1356.4	1413.7
23.5°	2295.7	2319.5	2255.8	2114.3	1915.1	1705.1	1521.7	1399.6	1343.1	1339.5	1396.0
24°	2280.8	2306.2	2243.7	2102.6	1901.8	1689.8	1504.4	1382.2	1325.8	1321.4	1377.8
24.5°	2264.2	2290.8	2230.4	2090.5	1888.1	1673.7	1486.6	1365.3	1308.5	1303.6	1360.1
25°	2245.3	2275.5	2216.3	2076.8	1874.4	1657.6	1469.7	1347.6	1291.1	1286.7	1342.3
25.5°	2225.9	2259.4	2201.0	2062.3	1859.1	1641.4	1452.4	1331.1	1274.6	1269.8	1324.6
26°	2206.6	2241.3	2184.8	2047.0	1844.2	1624.9	1435.1	1313.7	1257.7	1252.8	1306.9
26.5°	2185.2	2221.1	2167.9	2030.4	1827.7	1608.0	1416.9	1297.2	1240.8	1235.5	1289.1
27°	2162.7	2201.8	2150.2	2013.1	1811.6	1591.5	1399.6	1279.9	1223.8	1219.0	1271.4
27.5°	2138.9	2180.8	2130.8	1995.4	1794.2	1574.1	1382.2	1263.3	1207.7	1202.5	1254.5
28°	2116.3	2158.2	2110.7	1976.4	1777.3	1556.8	1364.9	1246.4	1190.8	1185.9	1236.7
28.5°	2090.9	2135.2	2090.1	1957.5	1759.1	1539.5	1347.2	1230.3	1175.0	1169.4	1219.4
29°	2065.5	2111.9	2068.7	1937.3	1741.0	1521.3	1329.8	1213.7	1158.5	1152.9	1202.1
29.5°	2039.7	2087.3	2046.2	1917.2	1722.1	1504.0	1312.9	1197.2	1142.0	1136.8	1184.7
30°	2013.9	2062.3	2023.2	1896.2	1703.9	1485.4	1295.2	1181.1	1125.9	1120.6	1167.8
30.5°	1986.1	2036.5	1999.4	1874.4	1684.2	1466.9	1277.8	1165.0	1110.1	1104.5	1150.5
31°	1958.7	2009.9	1974.8	1852.7	1664.4	1448.8	1260.5	1148.4	1094.0	1088.4	1133.1
31.5°	1930.9	1982.5	1949.8	1829.7	1644.3	1429.8	1243.2	1131.9	1078.7	1071.9	1115.8
32°	1902.7	1955.5	1924.4	1806.7	1624.5	1411.3	1225.8	1115.8	1062.6	1056.1	1099.3
32.5°	1874.0	1927.6	1897.8	1783.7	1603.5	1392.7	1208.9	1100.1	1047.3	1040.4	1081.9
33°	1845.8	1899.4	1871.6	1760.4	1582.6	1373.4	1191.2	1083.9	1031.5	1024.7	1065.0
33.5°	1817.2	1870.4	1844.6	1735.8	1561.6	1354.4	1174.2	1068.2	1016.2	1009.0	1047.7
34°	1788.2	1842.2	1817.2	1711.2	1540.3	1335.1	1156.5	1052.5	1000.9	993.2	1031.1
34.5°	1757.9	1812.0	1788.2	1686.6	1518.5	1315.7	1139.6	1036.4	985.6	977.5	1014.2
35°	1728.9	1782.9	1760.4	1661.2	1496.7	1296.4	1122.2	1020.7	970.3	962.2	997.3
35.5°	1699.9	1753.1	1732.1	1635.8	1475.0	1277.4	1105.3	1004.9	955.8	946.9	980.8
36°	1670.9	1724.5	1703.5	1610.0	1452.8	1258.1	1088.0	989.6	940.0	931.2	964.6
36.5°	1641.0	1694.7	1674.5	1584.2	1430.6	1237.9	1071.0	973.9	925.5	915.9	947.7
37°	1610.8	1664.0	1646.3	1558.0	1408.0	1218.6	1053.7	958.2	909.8	900.5	931.2
37.5°	1582.2	1634.2	1617.3	1531.8	1385.5	1199.6	1036.8	942.9	895.3	885.2	915.0
38°	1552.8	1604.4	1588.2	1505.2	1362.9	1179.5	1019.5	927.5	880.0	870.3	898.5
38.5°	1523.3	1574.1	1558.4	1478.6	1340.3	1160.1	1003.3	912.2	865.1	855.0	882.0
39°	1493.5	1545.1	1530.2	1452.0	1317.7	1140.4	986.0	896.5	850.6	840.1	866.3
39.5°	1465.3	1515.3	1500.8	1425.4	1294.8	1121.0	969.5	881.2	836.0	824.8	849.7
40°	1436.3	1485.0	1472.1	1398.8	1271.8	1100.9	952.5	865.9	820.7	809.8	834.0
40.5°	1406.8	1455.2	1442.7	1372.2	1248.8	1081.5	935.6	850.1	805.8	794.5	817.5
41°	1378.2	1426.6	1414.9	1345.2	1225.8	1061.8	919.1	835.2	791.3	779.2	802.2
41.5°	1350.4	1397.6	1385.9	1319.0	1203.7	1042.4	902.6	819.9	776.8	764.3	786.1
42°	1322.6	1368.1	1358.1	1292.8	1180.3	1022.7	885.6	804.6	761.9	749.8	770.3
42.5°	1294.4	1339.1	1329.8	1266.2	1157.7	1003.7	869.1	789.7	747.0	734.9	755.0
43°	1267.4	1311.7	1301.6	1240.8	1135.1	984.4	853.0	774.8	732.4	719.9	739.3
43.5°	1240.8	1283.5	1273.8	1214.2	1112.2	965.0	836.0	759.4	717.9	705.0	723.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1161.3	1200.8	1192.8	1138.0	1044.4	907.4	787.7	714.3	674.0	661.1	677.6
45.5°	1135.9	1174.2	1166.2	1112.2	1022.3	888.4	771.1	699.0	659.9	646.6	662.3
46°	1110.1	1147.6	1140.0	1087.6	1000.1	869.5	755.0	684.5	645.4	632.1	647.0
46.5°	1084.4	1121.8	1114.6	1063.0	978.3	851.0	738.9	669.6	630.9	617.2	632.1
47°	1060.6	1096.4	1088.4	1038.8	955.8	832.0	722.8	654.6	616.3	603.0	618.0
47.5°	1036.4	1070.6	1063.0	1014.2	934.0	813.5	707.0	640.1	601.4	588.5	602.2
48°	1011.8	1045.2	1038.4	990.4	912.6	795.3	690.9	625.6	587.7	574.4	587.7
48.5°	988.4	1021.9	1014.2	967.5	891.7	777.2	675.6	610.7	573.2	559.9	573.2
49°	966.2	997.7	990.4	944.5	870.3	758.6	659.9	596.6	558.7	546.2	559.5
49.5°	943.3	973.5	966.6	921.5	849.3	741.3	644.2	582.1	544.6	532.1	544.6
50°	920.3	950.1	942.9	899.3	828.8	723.2	628.8	567.6	530.5	518.4	530.9
50.5°	899.3	927.9	919.9	876.3	808.2	705.4	613.5	553.1	516.0	504.7	516.8
51°	877.6	905.8	896.9	855.0	788.5	688.1	598.2	539.0	502.3	490.6	503.1
51.5°	855.8	882.8	875.1	833.2	768.7	670.8	583.3	524.8	489.0	477.7	489.4
52°	835.6	861.8	853.8	812.3	748.6	653.8	568.4	511.1	474.9	464.8	476.1
52.5°	815.9	841.3	832.0	791.7	729.2	636.5	553.5	497.0	462.4	451.5	462.4
53°	794.9	819.5	811.0	770.7	710.3	620.0	539.0	483.3	455.5	438.6	449.5
53.5°	774.8	799.4	790.5	750.6	691.3	603.4	524.0	470.0	448.3	426.5	436.6
54°	756.6	779.6	769.9	730.8	672.4	586.9	509.9	456.7	440.2	419.2	424.1
54.5°	737.7	760.3	750.2	711.5	654.2	570.8	495.8	443.8	431.3	411.6	411.6
55°	718.3	740.9	730.8	692.1	636.5	555.1	482.1	431.3	422.9	403.5	399.5
55.5°	701.4	722.0	711.9	673.6	618.8	539.4	468.4	418.4	413.6	395.0	387.8
56°	683.3	703.4	692.9	654.6	601.0	524.0	454.7	409.2	404.7	386.6	376.1
56.5°	665.1	685.3	674.8	636.9	583.7	508.7	441.0	401.9	395.8	377.7	364.8
57°	647.8	667.1	656.7	619.2	567.2	493.8	428.1	393.8	386.6	369.2	353.9
57.5°	630.9	650.2	638.9	601.8	550.6	478.9	415.2	385.8	377.7	360.8	344.3
58°	612.7	632.9	621.6	584.5	534.5	464.8	402.7	377.3	369.2	352.3	334.6
58.5°	596.2	615.5	604.7	568.0	518.4	450.7	390.6	368.8	360.4	343.8	324.9
59°	578.9	599.0	587.7	551.4	502.7	436.6	378.5	360.0	351.5	335.8	315.2
59.5°	561.9	582.1	571.6	535.3	487.4	422.9	366.4	351.5	342.6	327.7	305.6
60°	546.2	565.6	555.5	519.2	472.4	409.6	354.7	343.4	333.8	319.3	298.3
60.5°	528.5	549.4	539.8	503.9	457.5	396.7	344.3	335.0	324.9	311.2	291.0
61°	513.2	532.1	523.6	488.6	443.4	383.8	333.8	326.5	316.0	302.7	283.8
61.5°	497.0	517.2	509.1	474.1	428.9	370.9	323.3	318.5	307.2	294.7	276.5
62°	481.7	501.5	494.2	459.1	415.2	359.2	312.8	310.0	297.9	286.6	269.3
62.5°	466.0	485.7	479.3	445.0	401.5	347.5	302.3	301.1	288.6	278.1	262.0
63°	450.3	470.8	464.8	430.5	388.2	336.2	292.3	292.7	279.4	269.7	254.8
63.5°	435.4	455.5	450.7	416.8	374.9	324.5	283.4	283.8	270.1	261.6	247.5
64°	420.0	441.0	437.0	403.1	362.0	313.2	274.9	275.3	260.8	253.1	241.1
64.5°	405.9	426.1	423.3	390.2	350.3	301.5	267.7	266.9	251.5	244.7	234.2
65°	391.4	412.4	410.0	377.3	338.2	291.4	260.8	258.8	242.7	236.6	227.4
65.5°	377.7	397.9	396.7	364.8	326.1	281.0	254.0	249.9	233.8	228.2	220.5
66°	363.2	384.6	383.8	352.3	314.4	270.1	246.7	241.9	224.9	220.1	214.0



TEST NUMBER: P776298

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

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	323.3	344.3	345.9	316.4	280.6	241.9	226.1	217.3	199.1	196.3	194.3
68°	310.0	331.4	333.8	305.2	269.3	232.6	219.3	209.2	191.1	188.2	187.8
68.5°	297.1	318.9	322.1	293.5	259.2	223.7	212.8	201.6	183.4	181.0	181.4
69°	285.0	306.4	310.4	282.6	249.1	215.3	206.0	193.5	175.8	173.3	174.9
69.5°	272.5	293.9	298.3	271.7	239.0	206.8	199.1	185.8	168.9	166.5	168.5
70°	260.4	282.2	287.4	261.6	229.4	198.7	192.7	178.2	161.6	159.6	162.0
70.5°	248.3	270.5	276.5	250.7	219.7	191.1	186.2	171.3	154.8	152.8	155.6
71°	236.6	258.8	265.6	241.1	210.8	183.4	179.8	164.1	148.3	146.3	149.6
71.5°	225.3	247.5	254.4	231.0	201.6	176.2	173.3	157.2	141.9	139.9	143.1
72°	214.5	236.2	244.3	221.3	193.1	168.9	166.9	150.8	135.4	133.4	137.1
72.5°	203.2	225.7	233.8	212.0	184.2	162.0	160.4	144.3	129.0	127.4	131.0
73°	192.3	215.3	223.7	202.4	176.2	155.6	154.4	137.9	122.9	121.3	125.0
73.5°	181.8	204.4	213.6	193.5	167.7	148.7	147.9	131.8	116.9	115.3	118.9
74°	171.3	194.7	204.0	185.0	160.0	142.3	141.9	125.8	110.9	109.2	113.3
74.5°	161.2	184.6	194.7	176.2	152.4	136.2	136.2	119.7	105.2	103.6	108.0
75°	151.6	174.9	185.0	167.7	145.1	130.2	129.8	114.1	99.2	97.6	102.4
75.5°	142.3	165.3	175.8	159.6	137.9	124.2	124.2	108.4	93.5	91.9	97.1
76°	133.0	156.4	166.9	151.6	131.0	118.5	118.1	102.4	88.3	86.3	91.9
76.5°	124.2	147.1	158.0	143.9	124.2	112.9	112.9	96.7	82.6	81.0	86.7
77°	114.9	138.7	149.6	136.7	117.7	107.6	107.2	91.5	77.4	75.4	81.4
77.5°	106.0	130.6	141.5	129.0	110.9	102.4	102.0	86.3	72.2	70.1	76.6
78°	97.6	122.1	133.8	121.7	104.8	97.1	96.3	80.6	66.9	64.9	71.3
78.5°	88.7	113.7	125.8	114.5	98.4	92.3	91.5	75.4	61.7	59.7	66.5
79°	80.6	105.6	117.7	107.6	92.7	87.9	86.3	70.1	56.8	54.8	61.7
79.5°	72.6	98.0	110.0	100.8	86.7	83.0	81.0	65.3	52.0	50.0	56.8
80°	64.9	90.3	102.4	94.3	81.0	78.6	76.2	60.1	47.2	45.1	52.4
80.5°	57.2	82.6	95.5	87.9	75.8	74.2	71.3	55.2	42.3	40.7	48.0
81°	50.0	75.8	88.7	81.8	70.5	69.7	66.5	50.4	37.9	36.7	43.9
81.5°	42.7	68.9	81.4	75.8	65.7	65.3	62.1	46.0	33.5	32.7	39.5
82°	35.5	62.5	75.0	70.1	60.9	60.9	57.2	41.1	29.0	28.6	35.9
82.5°	29.0	56.0	68.9	64.5	56.0	56.4	52.8	37.5	24.6	24.6	32.2
83°	22.6	50.0	62.9	59.3	51.6	52.4	48.4	33.5	20.2	20.6	28.6
83.5°	16.5	44.3	57.2	54.0	47.2	48.4	44.3	29.4	16.1	17.7	25.0
84°	14.5	39.1	51.6	48.8	43.1	43.9	40.3	25.8	12.9	15.3	21.4
84.5°	12.1	34.7	46.4	43.9	39.1	40.3	36.7	21.8	10.5	13.3	18.1
85°	9.7	30.6	41.1	39.1	35.5	36.3	32.7	19.3	9.3	11.3	14.9
85.5°	7.3	26.6	36.3	34.7	31.4	32.7	29.0	16.9	7.7	9.3	11.7
86°	5.2	23.0	31.4	30.2	27.8	28.6	25.4	14.5	6.4	7.3	8.9
86.5°	4.0	19.3	26.6	25.8	23.8	24.6	21.4	12.1	5.2	5.6	5.6
87°	2.8	15.7	22.2	21.8	20.2	21.0	18.1	10.1	4.0	3.6	2.8
87.5°	2.0	12.1	17.7	17.7	16.9	17.3	14.5	7.7	2.4	2.0	0.8
88°	0.8	8.9	13.7	14.1	13.7	14.1	11.3	5.6	1.2	0.8	0.4
88.5°	0.4	5.6	10.5	10.9	10.5	10.5	8.1	3.2	0.4	0.4	0.0



TEST NUMBER: P776298

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

CANDELA DISTRIBUTION (continued):

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



TEST NUMBER: P776298

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

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2183.6	2183.6	2183.6	2183.6	2183.6	2183.6
0.5°	2176.4	2174.7	2182.0	2189.7	2196.1	2200.5
1°	2167.5	2171.1	2184.0	2196.9	2207.4	2214.7
1.5°	2158.2	2167.1	2185.2	2203.4	2218.3	2228.0
2°	2148.5	2161.8	2186.0	2209.8	2229.2	2240.9
2.5°	2138.5	2157.4	2186.8	2215.9	2238.8	2253.4
3°	2128.4	2152.2	2186.8	2221.1	2248.5	2265.0
3.5°	2117.5	2146.5	2186.8	2226.3	2257.8	2276.7
4°	2106.6	2140.5	2186.0	2230.8	2266.3	2288.0
4.5°	2095.7	2133.6	2184.8	2234.8	2274.7	2298.5
5°	2083.6	2126.8	2183.6	2238.4	2282.4	2309.0
5.5°	2072.0	2119.9	2181.6	2241.7	2290.0	2318.3
6°	2059.9	2112.3	2179.6	2244.1	2296.5	2327.5
6.5°	2047.8	2104.2	2176.4	2246.5	2302.9	2336.0
7°	2034.9	2096.1	2173.5	2248.1	2308.2	2344.1
7.5°	2022.0	2087.3	2169.9	2249.3	2313.4	2351.7
8°	2008.7	2078.4	2165.5	2250.1	2317.9	2358.6
8.5°	1995.0	2068.7	2161.0	2250.1	2321.9	2364.6
9°	1981.3	2059.5	2156.2	2250.1	2325.5	2370.7
9.5°	1967.6	2049.4	2151.0	2249.3	2328.3	2375.9
10°	1953.4	2039.3	2145.3	2247.7	2330.7	2380.7
10.5°	1938.9	2028.4	2139.3	2246.1	2332.8	2384.8
11°	1924.0	2017.9	2132.4	2243.7	2334.0	2388.0
11.5°	1909.1	2006.3	2125.2	2240.9	2334.4	2390.8
12°	1894.2	1995.0	2117.9	2237.2	2334.4	2392.8
12.5°	1878.9	1982.9	2109.8	2233.2	2333.6	2394.4
13°	1864.0	1970.8	2101.8	2228.8	2332.4	2395.2
13.5°	1848.6	1958.3	2093.3	2223.9	2330.3	2395.6
14°	1832.5	1946.2	2084.5	2218.7	2327.9	2394.8
14.5°	1816.4	1933.3	2075.2	2213.0	2325.1	2394.0
15°	1800.7	1920.4	2065.9	2206.6	2321.5	2392.4
15.5°	1784.9	1907.5	2056.2	2199.7	2317.4	2390.0
16°	1768.8	1895.0	2046.6	2192.9	2313.0	2387.6
16.5°	1752.7	1881.7	2036.5	2186.0	2308.2	2384.0
17°	1737.4	1868.8	2026.8	2178.4	2302.9	2380.3
17.5°	1720.9	1855.9	2017.1	2170.7	2297.3	2375.9
18°	1704.3	1842.6	2007.5	2164.3	2291.2	2371.5
18.5°	1687.8	1829.3	1997.0	2157.4	2286.4	2366.2
19°	1671.7	1815.6	1987.3	2150.2	2282.0	2361.8
19.5°	1655.5	1802.3	1976.0	2142.1	2277.1	2358.2
20°	1639.4	1787.8	1964.3	2133.6	2271.1	2354.1
20.5°	1622.9	1773.3	1952.6	2124.8	2264.6	2349.7
21°	1606.0	1757.9	1939.7	2114.7	2257.4	2344.5

TEST NUMBER: P776298

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

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1554.8	1710.8	1895.4	2074.8	2225.5	2322.3
23°	1537.0	1694.2	1878.9	2058.3	2211.0	2309.8
23.5°	1519.7	1676.9	1861.1	2041.3	2195.3	2295.7
24°	1502.0	1658.8	1843.0	2023.2	2178.4	2280.8
24.5°	1484.6	1640.6	1823.2	2003.4	2160.6	2264.2
25°	1466.5	1622.1	1804.3	1983.7	2141.3	2245.3
25.5°	1448.4	1603.1	1784.5	1963.9	2120.3	2225.9
26°	1429.8	1583.8	1764.0	1943.0	2099.4	2206.6
26.5°	1411.3	1564.9	1743.0	1920.8	2077.6	2185.2
27°	1393.1	1545.5	1722.1	1899.0	2054.2	2162.7
27.5°	1374.2	1525.3	1700.7	1875.6	2029.6	2138.9
28°	1355.2	1504.8	1678.9	1851.5	2005.0	2116.3
28.5°	1336.3	1485.4	1656.8	1827.7	1980.5	2090.9
29°	1317.3	1464.5	1634.2	1803.5	1955.1	2065.5
29.5°	1298.4	1444.3	1612.0	1777.7	1928.5	2039.7
30°	1279.1	1423.4	1589.4	1752.7	1902.7	2013.9
30.5°	1259.7	1402.8	1565.7	1726.5	1874.8	1986.1
31°	1240.4	1381.8	1542.7	1700.7	1847.8	1958.7
31.5°	1221.4	1360.9	1518.9	1674.9	1820.0	1930.9
32°	1202.5	1339.1	1494.7	1647.5	1792.2	1902.7
32.5°	1182.7	1318.6	1471.3	1621.3	1763.6	1874.0
33°	1163.8	1296.8	1447.1	1594.7	1736.2	1845.8
33.5°	1144.8	1276.2	1423.4	1568.1	1708.0	1817.2
34°	1126.3	1254.5	1398.4	1541.5	1679.7	1788.2
34.5°	1106.9	1233.5	1374.2	1514.1	1651.1	1757.9
35°	1087.6	1211.7	1349.6	1487.5	1622.9	1728.9
35.5°	1068.6	1191.2	1325.8	1460.9	1594.3	1699.9
36°	1050.1	1170.6	1301.2	1434.2	1566.9	1670.9
36.5°	1031.1	1148.8	1277.0	1408.0	1538.2	1641.0
37°	1012.6	1127.5	1253.3	1381.4	1510.4	1610.8
37.5°	993.7	1106.9	1228.7	1355.2	1481.4	1582.2
38°	975.5	1086.0	1204.9	1329.0	1453.6	1552.8
38.5°	957.0	1065.0	1181.1	1303.6	1426.2	1523.3
39°	939.2	1044.0	1157.3	1277.8	1398.0	1493.5
39.5°	920.7	1023.5	1134.3	1252.4	1371.4	1465.3
40°	902.1	1002.9	1110.1	1226.6	1343.5	1436.3
40.5°	884.4	982.4	1088.0	1202.1	1316.9	1406.8
41°	866.7	961.8	1065.0	1176.7	1288.7	1378.2
41.5°	848.9	941.2	1042.4	1152.9	1263.3	1350.4
42°	831.2	921.5	1019.9	1128.7	1237.5	1322.6
42.5°	813.9	901.7	998.1	1104.9	1211.3	1294.4
43°	796.1	882.0	976.3	1080.7	1184.7	1267.4
43.5°	779.2	862.6	954.6	1057.7	1160.1	1240.8

TEST NUMBER: P776298

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

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	728.0	805.0	891.7	989.6	1085.2	1161.3
45.5°	711.1	786.5	871.5	967.5	1062.2	1135.9
46°	695.0	767.9	851.4	945.3	1038.8	1110.1
46.5°	678.4	749.4	831.2	924.3	1015.4	1084.4
47°	661.5	731.6	811.9	903.0	991.2	1060.6
47.5°	645.8	713.5	792.5	882.0	969.1	1036.4
48°	630.1	695.8	773.6	861.0	947.3	1011.8
48.5°	614.3	678.4	754.6	841.3	925.5	988.4
49°	599.0	661.5	736.1	821.5	903.4	966.2
49.5°	583.3	645.0	717.9	802.2	882.8	943.3
50°	568.0	628.0	700.2	782.0	861.4	920.3
50.5°	553.1	611.9	682.1	763.5	840.9	899.3
51°	538.1	595.8	665.1	744.5	820.3	877.6
51.5°	524.0	580.1	647.8	726.4	801.4	855.8
52°	509.5	564.7	631.3	708.7	781.6	835.6
52.5°	495.4	549.4	614.3	690.1	762.3	815.9
53°	481.3	534.1	598.6	672.8	743.7	794.9
53.5°	468.0	519.2	582.1	655.4	725.2	774.8
54°	454.7	504.7	566.4	638.5	706.6	756.6
54.5°	441.0	489.8	550.2	622.0	689.3	737.7
55°	428.1	476.1	535.7	605.5	671.6	718.3
55.5°	415.6	462.0	520.8	589.3	654.2	701.4
56°	403.1	448.3	505.9	573.6	636.9	683.3
56.5°	390.6	434.9	491.4	557.9	620.8	665.1
57°	378.5	421.6	477.3	542.6	604.3	647.8
57.5°	367.2	408.3	462.8	527.3	588.1	630.9
58°	355.5	396.3	449.1	512.7	572.8	612.7
58.5°	344.7	383.4	435.4	498.2	557.1	596.2
59°	334.2	371.3	422.1	484.1	541.8	578.9
59.5°	323.3	359.2	409.2	469.6	526.5	561.9
60°	312.4	347.1	396.3	455.5	511.1	546.2
60.5°	301.5	335.4	383.4	442.2	496.2	528.5
61°	291.4	324.1	371.3	428.9	481.3	513.2
61.5°	281.4	312.8	358.8	415.6	466.4	497.0
62°	272.1	301.9	347.1	402.7	451.9	481.7
62.5°	262.8	291.4	335.0	389.8	437.0	466.0
63°	253.1	281.0	323.7	377.3	422.9	450.3
63.5°	244.3	270.5	312.0	365.2	408.7	435.4
64°	235.8	260.4	301.1	353.1	395.0	420.0
64.5°	227.4	250.7	290.2	341.0	381.7	405.9
65°	219.3	241.1	279.8	329.7	368.0	391.4
65.5°	211.2	231.4	268.9	317.6	355.1	377.7
66°	203.2	222.5	258.8	306.4	341.8	363.2



TEST NUMBER: P776298

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

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	181.4	196.3	229.0	273.7	304.7	323.3
68°	174.5	188.2	219.7	263.2	292.7	310.0
68.5°	168.1	179.8	210.4	252.3	281.0	297.1
69°	161.6	172.1	201.6	242.3	269.3	285.0
69.5°	155.2	164.5	192.7	232.2	258.0	272.5
70°	149.6	157.2	184.2	222.5	246.3	260.4
70.5°	143.9	150.0	175.8	212.4	235.4	248.3
71°	138.7	145.1	167.7	203.2	224.5	236.6
71.5°	133.0	138.3	159.6	193.9	214.0	225.3
72°	127.8	131.4	152.0	184.6	204.0	214.5
72.5°	122.5	124.2	143.5	175.8	193.9	203.2
73°	117.7	117.3	136.7	166.9	183.8	192.3
73.5°	112.5	111.3	129.8	158.4	174.1	181.8
74°	107.6	105.2	122.9	150.0	164.9	171.3
74.5°	102.8	99.6	116.1	142.3	155.6	161.2
75°	97.6	93.5	109.6	134.2	147.1	151.6
75.5°	93.1	88.3	103.2	126.6	138.7	142.3
76°	88.3	83.0	96.7	118.5	130.6	133.0
76.5°	83.4	77.8	90.3	110.9	122.1	124.2
77°	78.6	73.0	84.7	103.6	114.1	114.9
77.5°	74.2	68.1	78.6	96.7	105.6	106.0
78°	69.7	63.7	73.4	89.9	98.4	97.6
78.5°	65.3	59.3	67.7	83.0	90.7	88.7
79°	60.9	54.8	62.5	77.0	83.4	80.6
79.5°	56.4	50.4	57.6	70.5	76.6	72.6
80°	52.0	46.4	52.4	64.5	69.7	64.9
80.5°	48.0	42.3	48.0	58.9	63.7	57.2
81°	43.9	38.3	43.5	53.2	57.6	50.0
81.5°	39.9	34.7	38.7	48.0	51.6	42.7
82°	35.9	31.0	34.7	42.7	46.0	35.5
82.5°	32.2	27.4	30.6	37.9	41.1	29.0
83°	28.2	23.8	26.6	33.5	35.9	22.6
83.5°	24.6	20.2	22.6	29.0	31.4	16.5
84°	20.6	16.9	18.9	24.6	27.4	14.5
84.5°	16.9	13.7	15.3	20.6	23.8	12.1
85°	13.3	10.9	12.1	16.5	20.2	9.7
85.5°	10.1	8.1	8.9	13.3	16.5	7.3
86°	6.9	5.2	6.0	10.1	13.3	5.2
86.5°	3.6	2.0	2.8	6.9	10.5	4.0
87°	1.2	0.4	0.8	3.6	7.3	2.8
87.5°	0.4	0.0	0.4	0.8	4.0	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: P776298

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

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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Scaled Data Report





21.5°	2338.4	2352.9	2288.0	2152.6	1964.3	1764.8	1591.1	1470.1	1413.7	1410.1	1467.7
22°	2331.6	2346.9	2281.2	2143.7	1952.2	1749.9	1573.3	1452.4	1396.0	1391.9	1449.6



44°	1213.3	1255.3	1247.2	1188.4	1089.2	945.3	819.9	744.1	703.0	690.5	707.9
44.5°	1186.7	1227.0	1219.8	1163.0	1066.6	926.3	803.8	729.2	688.5	675.6	692.9



66.5°	349.9	370.9	370.9	340.2	302.3	260.4	239.8	233.8	216.1	212.0	207.2
67°	336.2	357.2	358.4	327.7	291.4	251.1	233.0	225.3	207.6	204.0	200.7



89°	0.0	2.4	7.3	7.7	7.3	7.3	4.8	1.6	0.0	0.4	0.0
89.5°	0.0	0.4	4.0	4.4	4.4	4.0	2.4	0.4	0.0	0.4	0.0

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21.5°	1589.0	1742.6	1926.4	2103.0	2248.9	2338.4
22°	1572.1	1727.3	1911.5	2090.1	2238.0	2331.6



44°	761.9	842.5	933.2	1034.4	1135.5	1213.3
44.5°	744.9	823.5	912.2	1012.2	1111.0	1186.7



66.5°	195.9	213.6	248.7	295.5	329.3	349.9
67°	188.7	204.8	238.6	284.2	316.8	336.2

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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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(END OF REPORT)