

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: P776250

Luminaire Tested: HCDJBL3040CSD-HCD41TRMB-4000lm-2700K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776250  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B031)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBS3040CSD-HCD41TRMB-4000lm-2700K  
Description: 4 INCH ROUND SHALLOW-WIDE MATTE BLACK TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

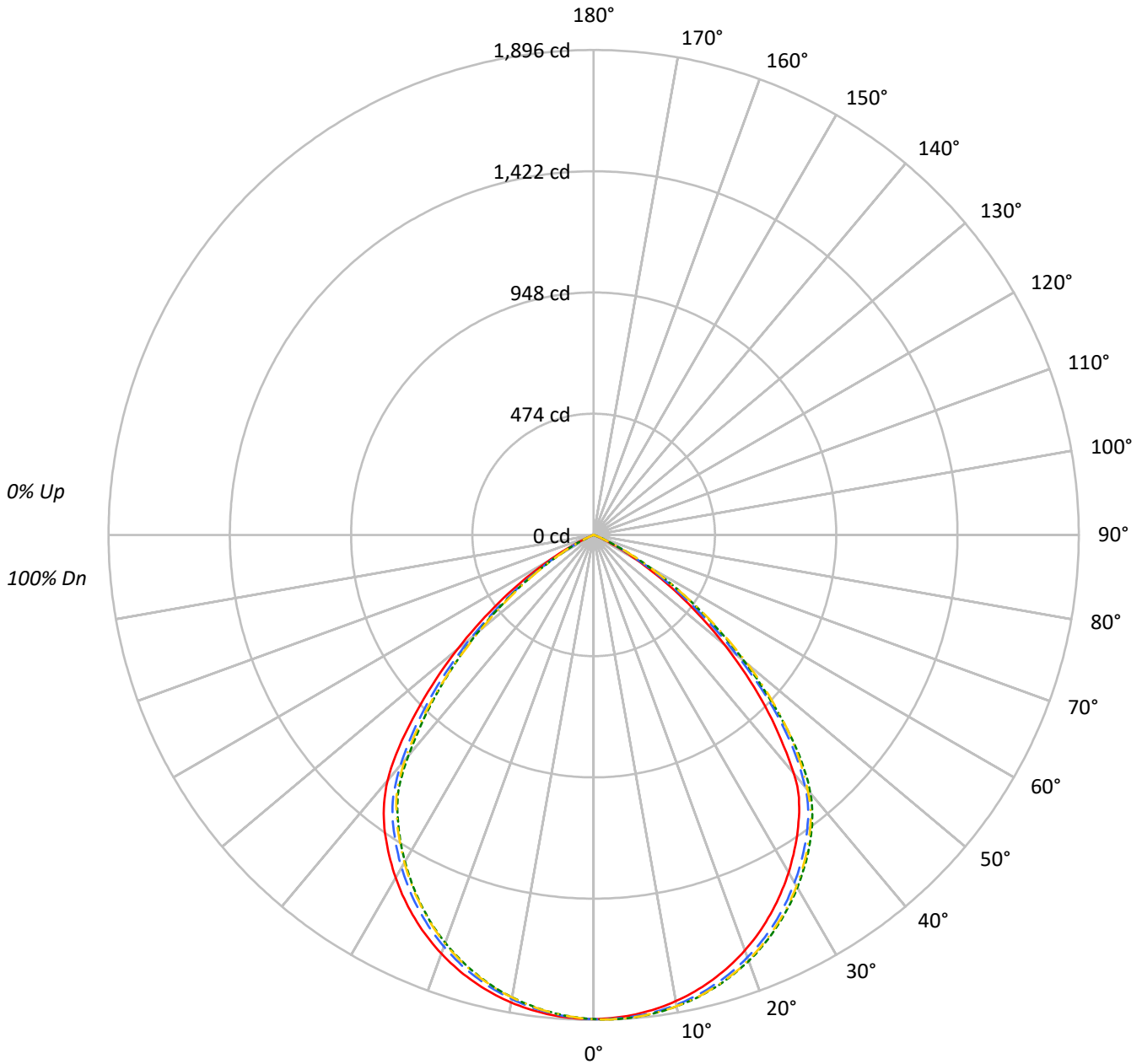
Lumens per Lamp: N/A  
Luminaire Lumens: 3506.4 lumens  
Efficiency: N/A  
Efficacy: 91.1 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.21 / 1.26  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

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	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	112	109	106	103	109	106	104	101	102	100	98	99	97	95	95	94	92	90								
2	105	98	93	89	102	97	92	88	93	89	86	90	87	84	87	85	82	81								
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	76	73	72								
4	90	81	74	68	88	80	73	68	77	72	67	75	70	66	73	69	65	64								
5	84	74	66	61	82	73	66	60	71	64	60	69	63	59	67	62	59	57								
6	78	67	60	54	77	66	59	54	65	58	54	63	57	53	62	57	53	51								
7	73	62	54	49	72	61	54	49	59	53	48	58	52	48	57	52	48	46								
8	69	57	49	44	67	56	49	44	55	48	44	54	48	44	53	47	43	42								
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	43	40	38								
10	60	49	42	37	59	48	41	37	47	41	37	46	41	36	45	40	36	35								

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

	0°	90°	180°	270°
0°	238246	238246	238246	238246
5°	237704	239068	237994	236731
10°	236478	239174	237219	234561
15°	234495	238703	235706	231446
20°	231479	237398	233233	227206
25°	227105	234937	229716	221606
30°	221422	231362	224881	214287
35°	214043	226303	218468	205301
40°	200050	216512	205915	185166
45°	168741	189583	174561	152065
50°	130590	150658	136014	114653
55°	89652	107929	94106	75741
60°	48528	63604	52479	38284
65°	14860	22989	16348	10303
70°	1398	1545	1398	1398
75°	1507	1507	1507	1507
80°	1377	1377	1087	1377
85°	578	1155	578	1155

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 112.5°  
 Vertical Angle: 45°  
 Luminance: 191095 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	178.8	5.1
10°-20°	508.7	14.5
20°-30°	756.7	21.6
30°-40°	874.6	24.9
40°-50°	738.0	21.0
50°-60°	375.4	10.7
60°-70°	70.3	2.0
70°-80°	3.1	0.1
80°-90°	0.8	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°	1444.2	41.2
0°-40°	2318.7	66.1
0°-60°	3432.2	97.9
0°-90°	3506.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3506.4	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1893	1893	1893	1893	1893	
5°	1882	1892	1884	1874	1882	179
15°	1800	1832	1809	1776	1800	507
25°	1636	1692	1654	1596	1636	753
35°	1393	1473	1422	1336	1393	868
45°	948	1065	981	854	948	726
55°	409	492	429	345	409	368
65°	50	77	55	35	50	66
75°	3	3	3	3	3	3
85°	0	1	0	1	0	1
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°	1893.1	1893.1	1893.1	1893.1	1893.1	1893.1	1893.1	1893.1	1893.1	1893.1	1893.1
0.5°	1892.8	1892.8	1893.5	1893.9	1894.3	1894.3	1894.3	1892.8	1892.4	1892.8	1892.4
1°	1892.4	1893.1	1893.9	1894.3	1894.7	1895.1	1894.7	1893.1	1892.4	1892.4	1891.6
1.5°	1891.6	1892.8	1893.9	1894.7	1894.7	1895.5	1895.1	1893.5	1892.0	1891.2	1890.5
2°	1890.8	1892.4	1893.5	1895.1	1895.1	1895.8	1895.5	1893.5	1891.6	1890.5	1888.9
2.5°	1889.3	1891.2	1893.1	1895.1	1895.1	1895.5	1894.7	1893.1	1890.8	1889.3	1887.8
3°	1888.2	1890.5	1892.4	1894.3	1895.1	1895.5	1894.7	1892.0	1890.1	1888.2	1885.9
3.5°	1886.6	1889.3	1892.0	1893.9	1894.3	1895.1	1894.7	1891.6	1888.5	1886.2	1884.3
4°	1885.5	1888.2	1890.8	1893.1	1893.9	1894.7	1893.9	1891.2	1887.4	1884.7	1882.4
4.5°	1883.5	1886.6	1890.1	1892.0	1893.1	1893.9	1892.8	1890.5	1885.9	1882.4	1879.7
5°	1881.6	1885.1	1888.5	1891.2	1892.4	1892.8	1891.6	1888.9	1883.9	1880.5	1877.4
5.5°	1879.3	1883.2	1887.0	1890.1	1890.8	1892.0	1890.8	1887.4	1882.4	1878.6	1874.7
6°	1876.6	1881.2	1885.9	1888.5	1889.7	1890.5	1889.3	1885.9	1880.1	1875.9	1872.0
6.5°	1873.9	1878.9	1883.5	1887.0	1888.2	1888.9	1887.4	1884.3	1877.8	1873.6	1869.3
7°	1871.6	1876.6	1881.6	1885.5	1886.2	1887.0	1885.5	1882.4	1875.1	1870.1	1866.3
7.5°	1868.6	1873.9	1879.3	1883.2	1883.9	1885.5	1883.5	1880.1	1872.4	1867.4	1862.8
8°	1865.5	1871.3	1877.0	1881.2	1882.0	1883.2	1881.2	1877.4	1869.3	1864.0	1859.4
8.5°	1862.0	1868.2	1874.3	1878.6	1879.7	1880.9	1878.9	1874.7	1866.3	1860.5	1855.5
9°	1858.2	1865.1	1871.6	1875.9	1877.0	1878.6	1876.6	1872.0	1863.2	1857.1	1851.3
9.5°	1854.4	1861.7	1868.6	1873.2	1874.3	1875.9	1873.6	1869.3	1860.1	1853.2	1847.1
10°	1850.5	1858.2	1865.1	1870.5	1871.6	1873.2	1870.9	1866.3	1856.3	1849.4	1842.8
10.5°	1846.3	1854.4	1861.7	1867.0	1868.6	1870.1	1867.4	1862.8	1852.4	1845.1	1838.2
11°	1842.1	1850.1	1858.2	1863.6	1865.1	1866.7	1864.3	1859.4	1848.6	1840.5	1833.6
11.5°	1837.9	1845.9	1854.4	1860.1	1861.7	1863.2	1860.5	1855.5	1844.4	1835.9	1828.6
12°	1832.5	1841.7	1850.1	1856.3	1858.2	1859.4	1857.1	1851.3	1839.8	1831.3	1823.3
12.5°	1827.9	1837.1	1845.9	1852.4	1854.4	1855.5	1852.8	1847.1	1834.8	1826.3	1817.9
13°	1822.5	1832.5	1841.3	1848.6	1850.1	1851.7	1849.0	1843.2	1830.2	1821.0	1812.1
13.5°	1817.5	1827.5	1836.7	1844.0	1845.9	1847.1	1844.4	1838.6	1825.2	1815.6	1806.4
14°	1811.7	1822.1	1832.1	1839.4	1841.3	1843.2	1840.2	1833.6	1819.8	1810.2	1800.6
14.5°	1806.0	1816.7	1826.7	1834.8	1836.7	1838.2	1835.2	1828.6	1814.8	1804.4	1794.1
15°	1799.8	1811.0	1821.3	1829.8	1832.1	1833.6	1830.2	1823.6	1809.1	1798.3	1787.5
15.5°	1793.7	1804.4	1816.3	1824.4	1827.1	1828.3	1824.8	1817.9	1803.3	1792.2	1781.4
16°	1787.2	1799.1	1810.6	1819.0	1821.7	1823.3	1819.4	1812.5	1797.1	1785.6	1774.9
16.5°	1780.6	1792.9	1804.4	1813.7	1816.0	1817.5	1814.0	1806.7	1791.0	1779.1	1767.6
17°	1774.1	1786.4	1798.7	1807.9	1810.6	1811.7	1808.3	1801.0	1784.5	1772.6	1760.3
17.5°	1766.8	1779.5	1792.5	1801.8	1804.4	1805.6	1802.1	1794.8	1777.6	1765.3	1752.6
18°	1759.1	1772.6	1785.6	1795.6	1798.3	1799.5	1796.0	1787.9	1770.7	1758.0	1744.9
18.5°	1751.8	1765.7	1778.7	1789.5	1791.8	1793.7	1789.5	1781.4	1764.1	1750.7	1737.2
19°	1744.2	1758.0	1772.2	1782.6	1785.6	1787.2	1782.6	1774.9	1756.8	1743.0	1729.6
19.5°	1736.5	1750.7	1764.9	1776.0	1779.1	1780.3	1775.6	1768.0	1749.5	1735.3	1721.1
20°	1728.4	1743.0	1757.6	1769.1	1772.6	1773.3	1768.7	1760.7	1741.5	1727.3	1712.7
20.5°	1720.0	1735.3	1750.3	1761.8	1765.3	1766.4	1761.4	1753.4	1734.2	1719.2	1703.8
21°	1711.5	1726.9	1742.6	1754.5	1758.4	1759.5	1754.1	1745.7	1725.7	1710.4	1695.0



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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°	1684.6	1701.5	1718.0	1731.1	1734.6	1735.7	1730.3	1721.9	1700.4	1683.9	1667.4
23°	1675.4	1692.7	1709.6	1723.0	1726.5	1727.6	1722.3	1713.4	1691.5	1675.0	1657.8
23.5°	1665.8	1683.1	1701.1	1715.0	1718.4	1718.8	1713.8	1704.6	1682.7	1665.4	1647.4
24°	1655.8	1673.9	1692.3	1706.1	1709.6	1710.7	1705.0	1696.2	1673.5	1655.8	1637.8
24.5°	1645.8	1664.7	1683.1	1697.3	1701.1	1701.5	1696.2	1686.9	1664.3	1646.2	1627.4
25°	1635.5	1655.1	1673.5	1688.1	1691.9	1692.7	1686.9	1677.7	1654.3	1635.9	1617.0
25.5°	1625.1	1645.1	1664.3	1679.3	1683.1	1683.5	1677.7	1668.5	1644.3	1625.9	1605.9
26°	1614.7	1634.7	1654.3	1669.7	1673.9	1674.3	1668.5	1658.9	1634.3	1615.1	1595.2
26.5°	1604.4	1624.3	1644.7	1660.1	1664.3	1664.3	1658.5	1648.9	1624.0	1604.4	1584.0
27°	1593.2	1614.0	1634.3	1650.5	1654.3	1654.7	1648.5	1638.9	1613.6	1594.0	1572.9
27.5°	1582.1	1603.2	1624.3	1640.9	1644.3	1644.7	1638.6	1628.6	1603.2	1582.9	1561.4
28°	1570.6	1592.5	1614.0	1630.5	1634.7	1635.1	1628.6	1618.2	1592.9	1571.7	1549.5
28.5°	1559.1	1581.0	1602.8	1620.1	1624.3	1624.3	1618.2	1607.4	1581.7	1560.6	1537.9
29°	1547.5	1569.8	1591.7	1609.4	1614.0	1613.6	1607.1	1597.1	1570.2	1548.7	1526.4
29.5°	1535.6	1558.3	1581.0	1599.0	1603.2	1602.8	1596.3	1586.3	1559.1	1537.2	1513.8
30°	1523.7	1547.2	1569.8	1588.2	1592.1	1592.1	1585.2	1574.8	1547.5	1525.3	1501.1
30.5°	1511.4	1535.3	1558.3	1577.1	1581.3	1580.2	1574.0	1563.7	1536.0	1513.4	1489.2
31°	1499.2	1523.4	1546.8	1565.2	1569.8	1569.0	1562.1	1552.2	1523.7	1501.1	1476.5
31.5°	1486.1	1511.1	1534.9	1554.1	1558.3	1557.5	1550.6	1540.6	1511.4	1488.4	1463.4
32°	1473.4	1498.8	1523.0	1542.6	1546.8	1546.0	1539.1	1528.7	1499.2	1476.1	1450.8
32.5°	1460.4	1485.7	1510.7	1530.6	1534.5	1533.7	1527.2	1516.8	1486.9	1463.1	1437.0
33°	1447.3	1473.0	1498.4	1518.4	1523.0	1521.4	1515.3	1504.5	1474.6	1450.4	1423.9
33.5°	1434.3	1460.0	1485.7	1506.5	1510.7	1509.1	1503.0	1491.9	1461.5	1437.3	1410.1
34°	1420.8	1447.3	1473.4	1493.8	1498.4	1497.2	1489.9	1479.6	1448.5	1423.5	1397.0
34.5°	1407.0	1433.9	1460.4	1481.5	1485.7	1484.2	1476.9	1466.5	1435.4	1410.1	1382.4
35°	1393.2	1420.4	1446.9	1468.1	1473.0	1471.5	1463.8	1453.1	1422.0	1396.2	1368.2
35.5°	1378.6	1406.6	1433.5	1455.4	1459.6	1458.5	1450.8	1440.0	1408.2	1382.0	1352.9
36°	1364.8	1392.8	1420.1	1441.6	1446.6	1445.0	1437.0	1426.6	1393.6	1367.1	1337.9
36.5°	1349.8	1378.6	1406.2	1428.1	1433.1	1431.2	1423.1	1412.4	1378.6	1351.7	1322.1
37°	1334.8	1364.0	1392.0	1413.9	1418.5	1416.6	1408.5	1397.8	1363.6	1336.3	1305.6
37.5°	1318.7	1348.2	1376.7	1398.9	1403.5	1401.6	1393.9	1382.8	1347.5	1319.4	1285.7
38°	1302.5	1332.5	1360.9	1384.0	1388.2	1386.3	1378.6	1367.1	1330.2	1301.0	1264.9
38.5°	1284.1	1314.8	1344.8	1367.8	1372.1	1369.7	1360.9	1350.5	1312.5	1281.0	1243.0
39°	1264.1	1295.3	1327.1	1351.7	1354.8	1351.7	1341.7	1332.5	1293.7	1259.9	1220.8
39.5°	1242.3	1273.7	1307.2	1334.0	1337.1	1331.7	1321.4	1312.9	1273.7	1238.4	1197.3
40°	1217.7	1251.1	1285.7	1315.2	1317.9	1310.6	1300.6	1291.8	1253.4	1215.4	1173.5
40.5°	1190.4	1228.1	1263.8	1295.3	1297.2	1289.5	1278.7	1270.3	1230.7	1192.0	1148.6
41°	1163.9	1204.2	1241.1	1273.7	1275.7	1267.2	1256.9	1248.0	1206.9	1168.1	1123.6
41.5°	1137.0	1179.7	1217.3	1251.1	1252.6	1244.9	1235.0	1224.6	1180.8	1143.2	1097.9
42°	1109.8	1153.6	1193.9	1226.5	1228.1	1221.9	1212.7	1200.8	1155.1	1117.8	1071.4
42.5°	1082.9	1127.4	1168.9	1201.2	1203.5	1198.9	1189.7	1177.0	1127.1	1091.7	1043.7
43°	1056.4	1100.9	1143.6	1175.4	1177.7	1175.1	1165.8	1150.9	1098.3	1064.5	1016.1
43.5°	1029.1	1073.7	1117.5	1148.2	1150.9	1150.5	1141.3	1125.5	1069.1	1036.4	988.0



TEST NUMBER: P776250

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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	948.1	990.4	1034.1	1060.6	1065.2	1073.7	1065.6	1044.1	980.8	950.4	904.0
45.5°	920.8	961.9	1004.6	1029.1	1035.3	1047.2	1038.7	1016.8	951.6	920.8	875.9
46°	893.2	934.3	975.8	998.8	1005.3	1019.5	1012.2	987.7	922.4	890.1	847.9
46.5°	865.2	905.9	945.8	968.5	975.4	992.3	985.7	960.0	892.8	859.8	819.5
47°	836.4	877.8	916.2	937.4	944.7	963.5	957.7	930.1	864.8	829.5	791.8
47.5°	807.6	849.8	886.3	905.9	915.1	935.1	930.4	900.9	836.4	799.5	763.4
48°	779.1	821.4	854.8	875.5	885.9	906.3	901.6	871.7	807.9	769.5	735.8
48.5°	750.3	792.6	824.1	845.2	856.7	877.5	874.0	844.8	779.5	738.8	708.1
49°	722.3	764.9	793.0	815.2	827.1	848.3	844.8	814.5	751.1	709.3	680.1
49.5°	694.3	736.5	762.6	785.3	798.0	818.7	816.8	785.7	722.7	679.7	652.0
50°	667.0	707.7	731.9	756.5	769.5	788.7	787.2	756.9	694.7	651.3	624.0
50.5°	639.4	678.9	701.6	726.2	740.7	759.2	758.0	728.8	666.6	622.1	595.6
51°	612.9	649.7	670.9	697.4	711.9	729.6	727.7	701.2	639.8	594.4	568.3
51.5°	585.6	621.7	641.7	668.2	683.5	700.4	699.7	673.5	611.7	566.8	541.1
52°	559.5	592.9	612.9	640.1	655.5	670.9	670.1	645.9	584.5	539.9	513.8
52.5°	533.8	565.3	584.8	610.6	627.1	642.1	640.9	617.9	558.0	513.4	486.9
53°	508.0	537.6	556.0	584.1	599.4	613.3	612.1	591.0	531.5	487.7	460.4
53.5°	482.3	510.3	528.4	556.4	572.2	584.8	583.7	564.1	505.0	462.0	434.7
54°	457.0	482.7	501.5	529.2	544.9	556.8	554.9	537.6	479.2	437.8	409.7
54.5°	432.4	455.8	475.0	501.1	517.6	528.8	526.9	511.1	454.3	414.7	385.5
55°	408.6	430.1	449.3	476.2	491.9	501.5	499.6	485.4	428.9	390.2	361.3
55.5°	384.8	404.0	423.6	450.8	466.2	474.6	471.6	459.3	404.4	366.3	339.5
56°	361.3	379.4	399.0	425.1	440.1	448.1	444.7	434.7	380.2	344.8	317.2
56.5°	338.3	355.2	374.8	399.4	414.7	421.6	418.6	409.0	357.5	323.3	295.3
57°	316.0	331.0	351.4	376.7	390.2	396.7	393.2	384.8	335.2	302.2	273.0
57.5°	294.1	308.0	328.3	352.9	366.3	371.7	368.3	361.3	313.0	280.7	252.7
58°	272.3	285.7	305.3	329.9	343.3	347.9	344.8	338.3	290.3	259.2	232.7
58.5°	251.9	264.2	283.4	307.6	320.3	324.1	321.0	314.9	268.0	240.0	213.9
59°	231.2	243.8	262.7	286.1	297.2	300.3	297.6	291.5	247.3	220.0	195.8
59.5°	212.0	223.9	242.3	265.3	274.6	276.5	274.2	268.4	228.1	202.0	178.6
60°	192.8	204.3	222.3	245.0	252.7	255.0	252.3	247.3	208.5	183.9	162.1
60.5°	175.1	186.2	203.1	225.8	232.3	233.9	231.6	226.6	189.7	167.0	145.5
61°	157.4	168.2	185.5	206.2	212.0	213.5	210.8	205.8	171.7	150.1	130.6
61.5°	140.9	151.7	167.8	187.8	192.4	193.5	191.2	186.6	155.1	134.8	116.7
62°	126.7	135.6	151.3	170.5	173.6	174.7	172.8	167.8	137.9	119.4	102.5
62.5°	112.9	122.5	135.6	153.2	155.1	156.7	154.8	149.0	122.1	105.2	89.9
63°	98.7	109.4	122.5	137.1	137.9	139.4	137.5	131.3	106.8	91.8	78.0
63.5°	84.9	96.4	109.4	122.9	121.3	122.9	121.0	115.2	92.5	79.5	67.2
64°	71.0	83.3	96.4	108.7	105.6	107.1	106.0	99.8	79.1	67.6	56.8
64.5°	59.9	70.7	83.3	94.8	90.6	92.5	91.4	85.2	66.8	56.8	47.6
65°	49.9	59.9	70.3	80.6	77.2	79.1	78.0	71.8	54.9	49.2	40.7
65.5°	41.5	50.3	59.5	66.8	64.5	66.0	65.3	59.9	46.1	41.1	34.2
66°	33.8	41.1	49.5	55.3	53.0	54.5	53.8	51.1	37.6	33.0	27.6





TEST NUMBER: P776250

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-4000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	16.5	20.4	25.7	27.3	28.8	30.0	29.2	25.3	11.5	12.7	10.4
68°	13.8	15.4	19.6	20.4	20.7	21.5	20.7	16.9	6.9	8.8	7.3
68.5°	11.5	12.3	14.2	15.0	13.1	13.4	12.7	11.5	4.6	5.8	5.4
69°	8.8	9.6	11.5	12.3	8.8	9.2	8.4	7.7	4.2	4.6	4.2
69.5°	6.5	6.9	9.2	9.6	6.1	6.1	5.8	5.4	4.2	4.2	4.2
70°	3.8	4.2	6.5	6.5	4.2	4.2	4.2	4.2	3.8	3.8	3.8
70.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
71°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
71.5°	3.5	3.5	3.5	3.8	3.5	3.5	3.8	3.8	3.8	3.8	3.8
72°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
72.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
73°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
73.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.5	3.5	3.1	3.1	3.5
74°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
74.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
75°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
75.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.1	2.7	2.7	2.7
76°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
76.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
77°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.3	2.3	2.7
77.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
78°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
78.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.9	1.9	2.3
79°	1.9	1.9	2.3	2.3	2.3	2.3	2.3	2.3	1.9	1.9	1.9
79.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.5	1.5	1.9
80.5°	1.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.5	1.5	1.9
81°	1.5	1.5	1.9	1.9	1.9	1.9	1.9	1.5	1.5	1.5	1.5
81.5°	1.5	1.5	1.5	1.9	1.5	1.5	1.5	1.5	1.2	1.2	1.5
82°	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.2	1.2	1.5
82.5°	1.2	1.2	1.5	1.5	1.5	1.5	1.5	1.2	0.8	1.2	1.2
83°	1.2	1.2	1.5	1.5	1.5	1.5	1.5	1.2	0.8	0.8	1.2
83.5°	0.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.8	0.8	1.2
84°	0.8	0.8	1.2	1.2	1.2	1.2	1.2	0.8	0.4	0.4	0.8
84.5°	0.4	0.8	1.2	1.2	1.2	1.2	1.2	0.8	0.4	0.4	0.8
85°	0.4	0.8	0.8	1.2	0.8	1.2	0.8	0.8	0.4	0.4	0.8
85.5°	0.4	0.4	0.8	0.8	0.8	0.8	0.8	0.4	0.0	0.4	0.8
86°	0.4	0.4	0.8	0.8	0.8	0.8	0.8	0.4	0.0	0.4	0.4
86.5°	0.0	0.4	0.8	0.8	0.4	0.8	0.8	0.4	0.0	0.4	0.4
87°	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.4
87.5°	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
88°	0.0	0.0	0.4	0.4	0.0	0.4	0.4	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: P776250  
CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-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: P776250

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-4000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1893.1	1893.1	1893.1	1893.1	1893.1	1893.1
0.5°	1892.0	1892.0	1892.8	1892.4	1891.6	1892.8
1°	1890.8	1890.8	1891.6	1891.2	1890.8	1892.4
1.5°	1889.3	1889.3	1890.1	1890.1	1889.7	1891.6
2°	1888.2	1887.8	1888.2	1888.5	1887.8	1890.8
2.5°	1886.6	1885.9	1886.6	1886.2	1886.2	1889.3
3°	1884.7	1883.9	1884.3	1884.3	1884.7	1888.2
3.5°	1882.4	1882.0	1882.0	1882.4	1882.8	1886.6
4°	1880.1	1879.7	1879.7	1880.1	1880.9	1885.5
4.5°	1877.4	1877.0	1877.0	1877.4	1878.6	1883.5
5°	1874.7	1873.9	1873.9	1874.7	1875.9	1881.6
5.5°	1872.0	1871.3	1870.9	1871.6	1873.6	1879.3
6°	1869.0	1867.8	1867.4	1869.0	1870.5	1876.6
6.5°	1865.9	1864.7	1864.0	1865.5	1867.4	1873.9
7°	1862.4	1861.3	1860.9	1862.0	1864.3	1871.6
7.5°	1858.6	1857.4	1857.1	1858.2	1861.3	1868.6
8°	1854.7	1853.2	1853.2	1854.0	1857.4	1865.5
8.5°	1850.5	1849.4	1849.0	1850.1	1853.2	1862.0
9°	1846.3	1844.8	1844.4	1845.9	1849.0	1858.2
9.5°	1842.1	1840.2	1839.8	1841.3	1844.8	1854.4
10°	1837.5	1835.5	1834.8	1836.7	1840.2	1850.5
10.5°	1832.5	1830.9	1830.2	1832.1	1835.9	1846.3
11°	1827.5	1825.9	1825.2	1827.1	1830.6	1842.1
11.5°	1822.1	1820.2	1819.8	1821.3	1825.6	1837.9
12°	1816.7	1814.8	1814.0	1816.0	1820.6	1832.5
12.5°	1811.4	1809.1	1808.3	1810.2	1814.8	1827.9
13°	1805.2	1802.9	1801.8	1804.4	1809.1	1822.5
13.5°	1799.1	1796.8	1795.6	1798.3	1803.3	1817.5
14°	1792.9	1790.2	1789.5	1792.2	1797.1	1811.7
14.5°	1786.4	1783.7	1782.6	1785.6	1791.0	1806.0
15°	1779.5	1776.4	1775.6	1778.3	1784.1	1799.8
15.5°	1772.6	1769.5	1768.7	1771.4	1777.2	1793.7
16°	1765.3	1762.2	1761.8	1764.5	1770.3	1787.2
16.5°	1758.4	1754.9	1754.1	1757.2	1763.0	1780.6
17°	1750.7	1746.8	1746.1	1749.5	1755.7	1774.1
17.5°	1743.0	1739.2	1738.4	1741.9	1748.0	1766.8
18°	1734.9	1731.1	1730.3	1733.4	1740.7	1759.1
18.5°	1726.5	1722.7	1721.9	1725.3	1732.6	1751.8
19°	1718.4	1714.2	1713.1	1716.9	1723.8	1744.2
19.5°	1709.6	1705.4	1704.6	1708.1	1715.7	1736.5
20°	1700.8	1696.5	1695.8	1699.2	1707.7	1728.4
20.5°	1691.9	1687.3	1686.2	1690.0	1698.5	1720.0
21°	1682.7	1677.7	1677.0	1680.8	1689.2	1711.5



TEST NUMBER: P776250

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-4000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1653.5	1648.9	1647.4	1651.2	1661.2	1684.6
23°	1643.5	1638.9	1637.4	1641.6	1650.8	1675.4
23.5°	1633.2	1628.2	1627.0	1631.3	1640.5	1665.8
24°	1622.8	1617.4	1615.9	1620.9	1630.5	1655.8
24.5°	1612.1	1606.7	1605.1	1609.8	1620.1	1645.8
25°	1601.3	1595.9	1594.4	1599.0	1609.8	1635.5
25.5°	1590.2	1584.4	1582.9	1587.5	1598.6	1625.1
26°	1579.0	1572.9	1571.4	1576.3	1587.5	1614.7
26.5°	1567.1	1561.4	1559.8	1565.2	1576.0	1604.4
27°	1556.0	1549.5	1548.3	1553.3	1564.4	1593.2
27.5°	1543.7	1537.6	1536.0	1541.4	1552.9	1582.1
28°	1531.8	1524.9	1523.7	1529.1	1541.0	1570.6
28.5°	1519.5	1513.0	1511.4	1517.2	1528.7	1559.1
29°	1507.2	1500.7	1498.8	1504.5	1516.8	1547.5
29.5°	1494.2	1488.0	1486.1	1492.2	1504.5	1535.6
30°	1481.9	1474.6	1473.4	1479.2	1492.2	1523.7
30.5°	1468.4	1461.9	1460.0	1466.5	1479.2	1511.4
31°	1455.4	1448.5	1446.6	1452.7	1466.1	1499.2
31.5°	1442.3	1435.4	1433.1	1440.0	1453.5	1486.1
32°	1428.9	1421.6	1419.3	1427.0	1440.4	1473.4
32.5°	1415.1	1408.2	1406.2	1413.1	1427.4	1460.4
33°	1400.9	1394.3	1392.4	1398.9	1413.5	1447.3
33.5°	1387.0	1380.1	1378.2	1385.5	1399.3	1434.3
34°	1372.8	1365.5	1364.0	1371.7	1385.5	1420.8
34.5°	1358.6	1351.3	1349.4	1357.1	1371.7	1407.0
35°	1343.6	1336.3	1334.8	1342.1	1356.7	1393.2
35.5°	1327.9	1321.4	1319.8	1327.5	1342.9	1378.6
36°	1312.5	1305.2	1304.1	1312.5	1327.9	1364.8
36.5°	1296.0	1288.7	1288.0	1296.8	1311.8	1349.8
37°	1278.0	1271.4	1271.1	1279.5	1295.6	1334.8
37.5°	1256.9	1251.5	1252.2	1262.6	1279.5	1318.7
38°	1234.2	1229.2	1230.4	1241.9	1259.2	1302.5
38.5°	1210.8	1204.6	1207.3	1219.2	1237.7	1284.1
39°	1185.4	1180.1	1183.1	1195.8	1215.4	1264.1
39.5°	1159.3	1153.9	1157.8	1170.8	1191.6	1242.3
40°	1132.8	1127.1	1131.3	1145.1	1166.6	1217.7
40.5°	1105.9	1099.4	1104.0	1119.0	1139.7	1190.4
41°	1079.8	1072.1	1077.1	1092.9	1112.5	1163.9
41.5°	1053.3	1043.7	1049.1	1065.2	1083.7	1137.0
42°	1026.8	1017.6	1021.5	1038.0	1055.6	1109.8
42.5°	1001.1	990.0	993.4	1010.3	1027.2	1082.9
43°	975.0	963.5	964.6	981.9	997.6	1056.4
43.5°	949.3	935.1	935.8	953.1	968.8	1029.1



TEST NUMBER: P776250

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-4000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	869.4	854.4	849.0	864.4	884.0	948.1
45.5°	842.1	826.8	820.2	834.8	855.2	920.8
46°	814.5	800.3	793.0	805.3	827.5	893.2
46.5°	786.1	771.9	764.6	775.7	799.5	865.2
47°	758.4	745.7	736.5	746.1	771.9	836.4
47.5°	730.8	717.3	708.1	716.9	743.4	807.6
48°	702.7	691.6	681.6	688.1	715.8	779.1
48.5°	675.5	663.9	653.6	659.0	688.1	750.3
49°	648.6	637.8	627.1	631.3	660.9	722.3
49.5°	621.3	611.7	599.8	603.7	633.6	694.3
50°	594.4	585.6	573.3	576.0	606.3	667.0
50.5°	569.1	559.9	546.8	549.1	579.8	639.4
51°	543.4	534.2	521.5	523.4	553.7	612.9
51.5°	517.6	509.6	495.8	497.7	527.2	585.6
52°	491.9	485.0	471.2	472.7	502.3	559.5
52.5°	467.7	460.8	446.2	447.8	476.9	533.8
53°	442.8	436.2	422.8	424.3	452.4	508.0
53.5°	418.2	412.8	398.6	401.3	427.8	482.3
54°	394.0	389.4	375.9	378.2	404.0	457.0
54.5°	371.3	367.1	354.1	356.4	380.6	432.4
55°	349.1	345.2	332.5	335.2	358.3	408.6
55.5°	327.2	322.9	311.8	314.5	335.6	384.8
56°	305.3	301.4	291.1	294.5	313.7	361.3
56.5°	283.4	280.7	271.1	274.9	292.2	338.3
57°	261.5	260.4	252.3	255.7	272.3	316.0
57.5°	241.5	240.8	233.9	237.3	251.9	294.1
58°	221.6	221.2	216.2	220.0	233.1	272.3
58.5°	202.4	202.8	199.3	203.1	213.9	251.9
59°	183.9	185.1	182.8	186.6	196.6	231.2
59.5°	166.3	168.2	167.4	170.9	179.7	212.0
60°	149.8	152.1	152.5	156.3	163.6	192.8
60.5°	134.0	135.6	137.9	141.3	147.5	175.1
61°	119.0	122.5	125.6	129.4	132.5	157.4
61.5°	104.4	109.8	113.3	117.1	119.8	140.9
62°	91.0	96.8	101.0	104.8	106.8	126.7
62.5°	79.1	83.7	88.7	92.5	93.7	112.9
63°	67.6	71.0	76.4	80.3	81.0	98.7
63.5°	57.2	60.3	66.0	69.9	69.9	84.9
64°	47.6	50.7	56.4	60.3	59.9	71.0
64.5°	41.1	42.2	47.6	51.1	49.9	59.9
65°	34.9	34.6	39.9	42.6	41.9	49.9
65.5°	28.4	28.0	32.6	34.9	34.2	41.5
66°	22.3	22.3	25.7	28.4	27.3	33.8



TEST NUMBER: P776250

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-4000lm-2700K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	8.8	11.1	12.3	12.3	12.3	16.5
68°	6.5	8.8	9.6	10.4	8.8	13.8
68.5°	5.0	6.5	6.9	8.1	8.1	11.5
69°	4.2	4.2	4.2	6.1	6.9	8.8
69.5°	4.2	4.2	3.8	4.2	5.8	6.5
70°	3.8	3.8	3.8	3.8	4.6	3.8
70.5°	3.8	3.8	3.8	3.8	3.8	3.8
71°	3.8	3.8	3.8	3.8	3.5	3.8
71.5°	3.5	3.5	3.5	3.5	3.5	3.5
72°	3.5	3.5	3.5	3.5	3.5	3.5
72.5°	3.5	3.5	3.5	3.5	3.5	3.5
73°	3.5	3.5	3.5	3.5	3.1	3.5
73.5°	3.1	3.1	3.1	3.1	3.1	3.1
74°	3.1	3.1	3.1	3.1	3.1	3.1
74.5°	3.1	3.1	3.1	3.1	3.1	3.1
75°	3.1	3.1	3.1	3.1	2.7	3.1
75.5°	2.7	2.7	2.7	2.7	2.7	2.7
76°	2.7	2.7	2.7	2.7	2.7	2.7
76.5°	2.7	2.7	2.7	2.7	2.7	2.7
77°	2.7	2.7	2.7	2.7	2.3	2.7
77.5°	2.3	2.3	2.3	2.3	2.3	2.3
78°	2.3	2.3	2.3	2.3	2.3	2.3
78.5°	2.3	2.3	2.3	2.3	1.9	2.3
79°	2.3	2.3	2.3	1.9	1.9	1.9
79.5°	1.9	1.9	1.9	1.9	1.9	1.9
80°	1.9	1.9	1.9	1.9	1.5	1.9
80.5°	1.9	1.9	1.9	1.9	1.5	1.5
81°	1.5	1.9	1.9	1.5	1.5	1.5
81.5°	1.5	1.5	1.5	1.5	1.2	1.5
82°	1.5	1.5	1.5	1.5	1.2	1.2
82.5°	1.5	1.5	1.5	1.2	1.2	1.2
83°	1.2	1.2	1.2	1.2	0.8	1.2
83.5°	1.2	1.2	1.2	1.2	0.8	0.8
84°	1.2	1.2	1.2	1.2	0.8	0.8
84.5°	0.8	0.8	0.8	0.8	0.4	0.4
85°	0.8	0.8	0.8	0.8	0.4	0.4
85.5°	0.8	0.8	0.8	0.8	0.4	0.4
86°	0.4	0.4	0.4	0.4	0.4	0.4
86.5°	0.4	0.4	0.4	0.4	0.4	0.0
87°	0.4	0.4	0.4	0.4	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: P776250

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-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





21.5°	1702.7	1718.8	1734.9	1746.8	1750.3	1751.5	1746.1	1738.0	1717.7	1701.9	1686.2
22°	1693.9	1710.4	1726.5	1739.2	1742.6	1743.4	1738.8	1730.3	1708.8	1693.5	1677.0



44°	1002.6	1046.4	1090.2	1119.4	1123.6	1125.5	1116.7	1099.0	1039.9	1008.0	960.4
44.5°	975.4	1018.0	1061.8	1090.2	1094.0	1100.2	1092.1	1073.3	1009.9	979.6	932.4



66.5°	26.9	33.4	40.7	44.9	44.9	46.5	45.3	42.6	28.8	25.3	20.7
67°	21.5	26.5	32.6	35.3	36.9	38.0	37.2	33.8	20.4	17.3	14.2



89°	0.0	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	0.0



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21.5°	1673.1	1668.5	1667.0	1671.2	1679.6	1702.7
22°	1663.5	1658.9	1657.4	1661.2	1670.4	1693.9

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44°	922.4	908.6	906.6	923.5	940.4	1002.6
44.5°	896.3	880.9	877.8	894.0	912.4	975.4



66.5°	16.1	17.7	20.0	22.3	21.1	26.9
67°	12.3	13.4	15.0	16.9	16.5	21.5

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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)