

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: P776251

Luminaire Tested: HCDJBL3040CSD-HCD41TRMB-4000lm-3000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776251  
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: HCDJBL3040CSD-HCD41TRMB-4000lm-3000K  
Description: 4 INCH ROUND SHALLOW-WIDE MATTE BLACK TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

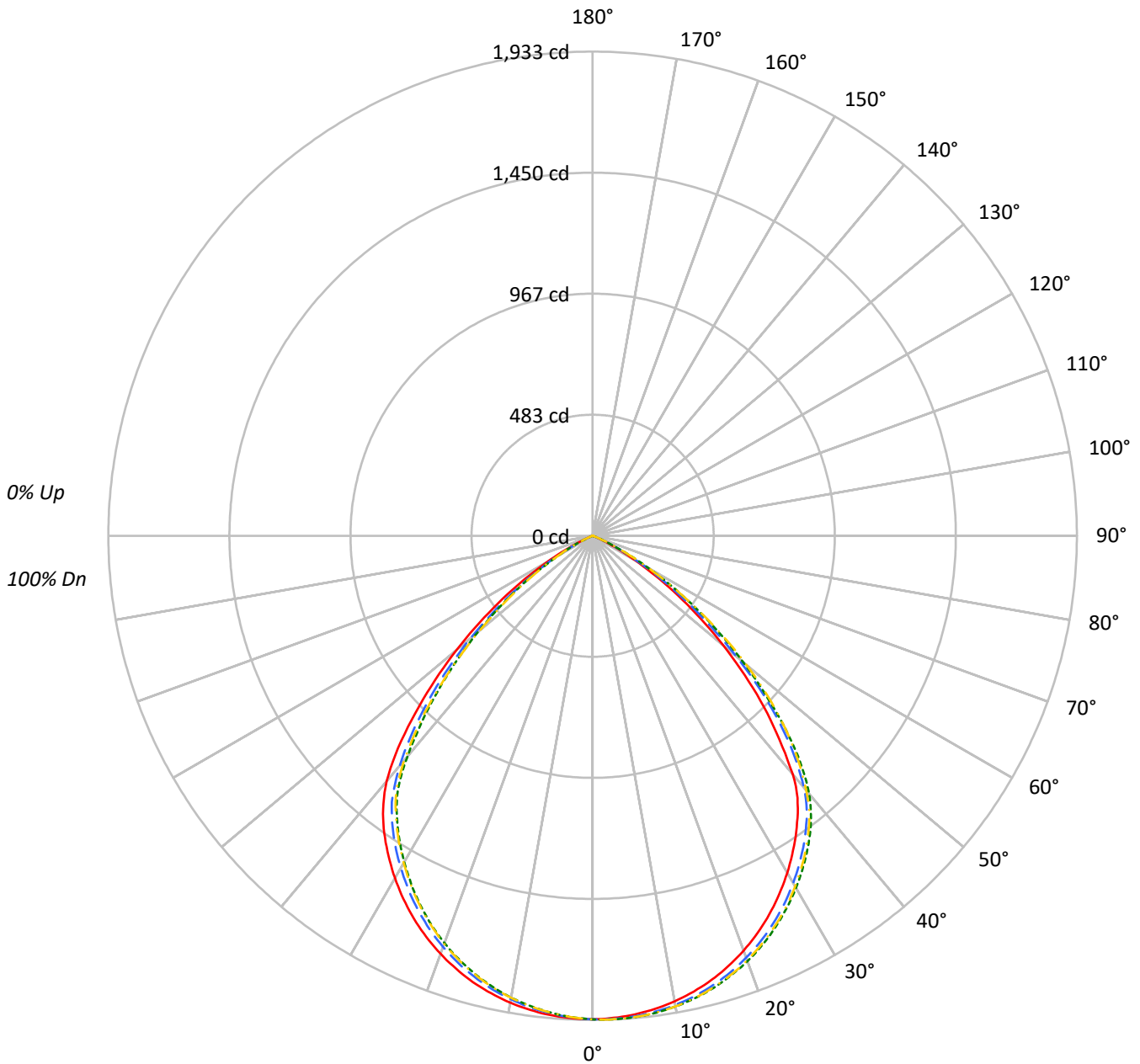
Lumens per Lamp: N/A  
Luminaire Lumens: 3575.4 lumens  
Efficiency: N/A  
Efficacy: 92.9 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.21 / 1.26  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

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



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20				
RC	80					70					50					30				
RW	70	50	30	10	70	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°	242940	242940	242940	242940
5°	242390	243767	242681	241392
10°	241142	243890	241883	239187
15°	239120	243406	240345	236006
20°	236032	242072	237827	231680
25°	231577	239561	234243	225981
30°	225782	235911	229313	218501
35°	218253	230774	222770	209357
40°	203993	220783	209973	188797
45°	172070	193320	177996	155055
50°	133175	153634	138676	116905
55°	91407	110057	95971	77233
60°	49484	64863	53511	39039
65°	15157	23436	16676	10482
70°	1435	1582	1435	1435
75°	1507	1507	1507	1507
80°	1449	1449	1160	1449
85°	578	1155	578	1155

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 112.5°  
 Vertical Angle: 45°  
 Luminance: 194851 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	182.3	5.1
10°-20°	518.7	14.5
20°-30°	771.6	21.6
30°-40°	891.8	24.9
40°-50°	752.5	21.0
50°-60°	382.8	10.7
60°-70°	71.6	2.0
70°-80°	3.1	0.1
80°-90°	0.9	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°	1472.6	41.2
0°-40°	2364.4	66.1
0°-60°	3499.7	97.9
0°-90°	3575.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3575.4	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1930	1930	1930	1930	1930	
5°	1919	1930	1921	1911	1919	182
15°	1835	1868	1845	1811	1835	517
25°	1668	1725	1687	1627	1668	767
35°	1421	1502	1450	1363	1421	885
45°	967	1086	1000	871	967	740
55°	417	502	437	352	417	376
65°	51	79	56	35	51	67
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°	1930.4	1930.4	1930.4	1930.4	1930.4	1930.4	1930.4	1930.4	1930.4	1930.4	1930.4
0.5°	1930.0	1930.0	1930.8	1931.2	1931.6	1931.6	1931.6	1930.0	1929.6	1930.0	1929.6
1°	1929.6	1930.4	1931.2	1931.6	1932.0	1932.4	1932.0	1930.4	1929.6	1929.6	1928.9
1.5°	1928.9	1930.0	1931.2	1932.0	1932.0	1932.8	1932.4	1930.8	1929.2	1928.5	1927.7
2°	1928.1	1929.6	1930.8	1932.4	1932.4	1933.2	1932.8	1930.8	1928.9	1927.7	1926.1
2.5°	1926.5	1928.5	1930.4	1932.4	1932.4	1932.8	1932.0	1930.4	1928.1	1926.5	1924.9
3°	1925.3	1927.7	1929.6	1931.6	1932.4	1932.8	1932.0	1929.2	1927.3	1925.3	1923.0
3.5°	1923.8	1926.5	1929.2	1931.2	1931.6	1932.4	1932.0	1928.9	1925.7	1923.4	1921.4
4°	1922.6	1925.3	1928.1	1930.4	1931.2	1932.0	1931.2	1928.5	1924.6	1921.8	1919.5
4.5°	1920.6	1923.8	1927.3	1929.2	1930.4	1931.2	1930.0	1927.7	1923.0	1919.5	1916.7
5°	1918.7	1922.2	1925.7	1928.5	1929.6	1930.0	1928.9	1926.1	1921.0	1917.5	1914.4
5.5°	1916.3	1920.2	1924.2	1927.3	1928.1	1929.2	1928.1	1924.6	1919.5	1915.5	1911.6
6°	1913.6	1918.3	1923.0	1925.7	1926.9	1927.7	1926.5	1923.0	1917.1	1912.8	1908.9
6.5°	1910.8	1915.9	1920.6	1924.2	1925.3	1926.1	1924.6	1921.4	1914.8	1910.5	1906.1
7°	1908.5	1913.6	1918.7	1922.6	1923.4	1924.2	1922.6	1919.5	1912.0	1906.9	1903.0
7.5°	1905.4	1910.8	1916.3	1920.2	1921.0	1922.6	1920.6	1917.1	1909.3	1904.2	1899.5
8°	1902.2	1908.1	1914.0	1918.3	1919.1	1920.2	1918.3	1914.4	1906.1	1900.7	1896.0
8.5°	1898.7	1905.0	1911.2	1915.5	1916.7	1917.9	1915.9	1911.6	1903.0	1897.1	1892.1
9°	1894.8	1901.8	1908.5	1912.8	1914.0	1915.5	1913.6	1908.9	1899.9	1893.6	1887.7
9.5°	1890.9	1898.3	1905.4	1910.1	1911.2	1912.8	1910.5	1906.1	1896.7	1889.7	1883.4
10°	1887.0	1894.8	1901.8	1907.3	1908.5	1910.1	1907.7	1903.0	1892.8	1885.8	1879.1
10.5°	1882.7	1890.9	1898.3	1903.8	1905.4	1906.9	1904.2	1899.5	1888.9	1881.5	1874.4
11°	1878.3	1886.6	1894.8	1900.3	1901.8	1903.4	1901.1	1896.0	1885.0	1876.8	1869.7
11.5°	1874.0	1882.3	1890.9	1896.7	1898.3	1899.9	1897.1	1892.1	1880.7	1872.1	1864.6
12°	1868.6	1878.0	1886.6	1892.8	1894.8	1896.0	1893.6	1887.7	1876.0	1867.4	1859.2
12.5°	1863.9	1873.3	1882.3	1888.9	1890.9	1892.1	1889.3	1883.4	1870.9	1862.3	1853.7
13°	1858.4	1868.6	1877.6	1885.0	1886.6	1888.1	1885.4	1879.5	1866.2	1856.8	1847.8
13.5°	1853.3	1863.5	1872.9	1880.3	1882.3	1883.4	1880.7	1874.8	1861.1	1851.3	1841.9
14°	1847.4	1858.0	1868.2	1875.6	1877.6	1879.5	1876.4	1869.7	1855.6	1845.8	1836.1
14.5°	1841.5	1852.5	1862.7	1870.9	1872.9	1874.4	1871.3	1864.6	1850.5	1840.0	1829.4
15°	1835.3	1846.6	1857.2	1865.8	1868.2	1869.7	1866.2	1859.6	1844.7	1833.7	1822.7
15.5°	1829.0	1840.0	1852.1	1860.3	1863.1	1864.2	1860.7	1853.7	1838.8	1827.4	1816.5
16°	1822.4	1834.5	1846.2	1854.9	1857.6	1859.2	1855.2	1848.2	1832.5	1820.8	1809.8
16.5°	1815.7	1828.2	1840.0	1849.4	1851.7	1853.3	1849.8	1842.3	1826.3	1814.1	1802.4
17°	1809.0	1821.6	1834.1	1843.5	1846.2	1847.4	1843.9	1836.4	1819.6	1807.5	1794.9
17.5°	1801.6	1814.5	1827.8	1837.2	1840.0	1841.1	1837.6	1830.2	1812.6	1800.0	1787.1
18°	1793.8	1807.5	1820.8	1831.0	1833.7	1834.9	1831.4	1823.1	1805.5	1792.6	1779.3
18.5°	1786.3	1800.4	1813.7	1824.7	1827.1	1829.0	1824.7	1816.5	1798.9	1785.2	1771.4
19°	1778.5	1792.6	1807.1	1817.7	1820.8	1822.4	1817.7	1809.8	1791.4	1777.3	1763.6
19.5°	1770.7	1785.2	1799.6	1811.0	1814.1	1815.3	1810.6	1802.8	1784.0	1769.5	1755.0
20°	1762.4	1777.3	1792.2	1803.9	1807.5	1808.3	1803.6	1795.3	1775.8	1761.3	1746.4
20.5°	1753.8	1769.5	1784.8	1796.5	1800.0	1801.2	1796.1	1787.9	1768.3	1753.0	1737.4
21°	1745.2	1760.9	1776.9	1789.1	1793.0	1794.2	1788.7	1780.1	1759.7	1744.0	1728.4



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	1717.8	1735.0	1751.9	1765.2	1768.7	1769.9	1764.4	1755.8	1733.9	1717.0	1700.2
23°	1708.4	1726.0	1743.3	1757.0	1760.5	1761.7	1756.2	1747.2	1724.9	1708.0	1690.4
23.5°	1698.6	1716.2	1734.6	1748.7	1752.3	1752.7	1747.6	1738.2	1715.8	1698.2	1679.8
24°	1688.4	1706.8	1725.6	1739.7	1743.3	1744.4	1738.6	1729.6	1706.4	1688.4	1670.0
24.5°	1678.3	1697.4	1716.2	1730.7	1734.6	1735.0	1729.6	1720.2	1697.1	1678.6	1659.5
25°	1667.7	1687.7	1706.4	1721.3	1725.2	1726.0	1720.2	1710.8	1686.9	1668.1	1648.9
25.5°	1657.1	1677.5	1697.1	1712.3	1716.2	1716.6	1710.8	1701.4	1676.7	1657.9	1637.5
26°	1646.5	1666.9	1686.9	1702.5	1706.8	1707.2	1701.4	1691.6	1666.5	1646.9	1626.6
26.5°	1636.0	1656.3	1677.1	1692.7	1697.1	1697.1	1691.2	1681.4	1655.9	1636.0	1615.2
27°	1624.6	1645.8	1666.5	1683.0	1686.9	1687.3	1681.0	1671.2	1645.4	1625.4	1603.9
27.5°	1613.3	1634.8	1656.3	1673.2	1676.7	1677.1	1670.8	1660.6	1634.8	1614.0	1592.1
28°	1601.5	1623.8	1645.8	1662.6	1666.9	1667.3	1660.6	1650.1	1624.2	1602.7	1580.0
28.5°	1589.8	1612.1	1634.4	1652.0	1656.3	1656.3	1650.1	1639.1	1612.9	1591.3	1568.2
29°	1578.0	1600.7	1623.0	1641.1	1645.8	1645.4	1638.7	1628.5	1601.1	1579.2	1556.5
29.5°	1565.9	1589.0	1612.1	1630.5	1634.8	1634.4	1627.7	1617.6	1589.8	1567.4	1543.6
30°	1553.7	1577.6	1600.7	1619.5	1623.4	1623.4	1616.4	1605.8	1578.0	1555.3	1530.6
30.5°	1541.2	1565.5	1589.0	1608.2	1612.5	1611.3	1605.0	1594.5	1566.3	1543.2	1518.5
31°	1528.7	1553.3	1577.2	1596.0	1600.7	1599.9	1592.9	1582.7	1553.7	1530.6	1505.6
31.5°	1515.4	1540.8	1565.1	1584.7	1589.0	1588.2	1581.1	1571.0	1541.2	1517.7	1492.3
32°	1502.4	1528.3	1553.0	1572.9	1577.2	1576.4	1569.4	1558.8	1528.7	1505.2	1479.3
32.5°	1489.1	1515.0	1540.4	1560.8	1564.7	1563.9	1557.3	1546.7	1516.1	1491.9	1465.2
33°	1475.8	1502.1	1527.9	1548.3	1553.0	1551.4	1545.1	1534.2	1503.6	1478.9	1451.9
33.5°	1462.5	1488.7	1515.0	1536.1	1540.4	1538.9	1532.6	1521.2	1490.3	1465.6	1437.8
34°	1448.8	1475.8	1502.4	1523.2	1527.9	1526.7	1519.3	1508.7	1477.0	1451.5	1424.5
34.5°	1434.7	1462.1	1489.1	1510.7	1515.0	1513.4	1506.0	1495.4	1463.7	1437.8	1409.6
35°	1420.6	1448.4	1475.4	1497.0	1502.1	1500.5	1492.7	1481.7	1450.0	1423.7	1395.2
35.5°	1405.7	1434.3	1461.7	1484.0	1488.3	1487.2	1479.3	1468.4	1435.9	1409.2	1379.5
36°	1391.6	1420.2	1448.0	1469.9	1475.0	1473.5	1465.2	1454.7	1421.0	1394.0	1364.2
36.5°	1376.4	1405.7	1433.9	1456.2	1461.3	1459.4	1451.1	1440.2	1405.7	1378.3	1348.2
37°	1361.1	1390.8	1419.4	1441.7	1446.4	1444.5	1436.3	1425.3	1390.5	1362.7	1331.3
37.5°	1344.6	1374.8	1403.8	1426.5	1431.2	1429.2	1421.4	1410.0	1374.0	1345.4	1311.0
38°	1328.2	1358.7	1387.7	1411.2	1415.5	1413.6	1405.7	1394.0	1356.4	1326.6	1289.8
38.5°	1309.4	1340.7	1371.3	1394.8	1399.1	1396.7	1387.7	1377.1	1338.4	1306.3	1267.5
39°	1289.0	1320.8	1353.3	1378.3	1381.4	1378.3	1368.1	1358.7	1319.2	1284.7	1244.8
39.5°	1266.7	1298.8	1332.9	1360.3	1363.4	1358.0	1347.4	1338.8	1298.8	1262.8	1220.9
40°	1241.7	1275.7	1311.0	1341.1	1343.9	1336.4	1326.2	1317.2	1278.1	1239.3	1196.6
40.5°	1213.9	1252.2	1288.6	1320.8	1322.7	1314.9	1303.9	1295.3	1255.0	1215.4	1171.2
41°	1186.8	1228.0	1265.5	1298.8	1300.8	1292.2	1281.6	1272.6	1230.7	1191.1	1145.7
41.5°	1159.4	1202.9	1241.3	1275.7	1277.3	1269.5	1259.3	1248.7	1204.1	1165.7	1119.5
42°	1131.6	1176.3	1217.4	1250.7	1252.2	1246.0	1236.6	1224.4	1177.8	1139.9	1092.5
42.5°	1104.2	1149.6	1191.9	1224.8	1227.2	1222.5	1213.1	1200.2	1149.2	1113.2	1064.3
43°	1077.2	1122.6	1166.1	1198.6	1200.9	1198.2	1188.8	1173.5	1119.9	1085.4	1036.1
43.5°	1049.4	1094.8	1139.5	1170.8	1173.5	1173.1	1163.7	1147.7	1090.1	1056.8	1007.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	966.8	1009.9	1054.5	1081.5	1086.2	1094.8	1086.6	1064.7	1000.1	969.1	921.7
45.5°	939.0	980.9	1024.3	1049.4	1055.7	1067.8	1059.2	1036.9	970.3	939.0	893.2
46°	910.8	952.7	995.0	1018.5	1025.1	1039.6	1032.2	1007.1	940.5	907.7	864.6
46.5°	882.2	923.7	964.4	987.5	994.6	1011.8	1005.2	978.9	910.4	876.7	835.6
47°	852.8	895.1	934.3	955.8	963.3	982.4	976.6	948.4	881.8	845.8	807.4
47.5°	823.5	866.5	903.7	923.7	933.1	953.5	948.8	918.6	852.8	815.2	778.4
48°	794.5	837.6	871.6	892.8	903.3	924.1	919.4	888.9	823.9	784.7	750.2
48.5°	765.1	808.2	840.3	861.8	873.6	894.7	891.2	861.4	794.9	753.4	722.0
49°	736.5	780.0	808.6	831.3	843.4	865.0	861.4	830.5	765.9	723.2	693.5
49.5°	708.0	751.0	777.7	800.8	813.7	834.8	832.9	801.1	736.9	693.1	664.9
50°	680.2	721.7	746.3	771.4	784.7	804.3	802.7	771.8	708.3	664.1	636.3
50.5°	652.0	692.3	715.4	740.5	755.3	774.1	773.0	743.2	679.8	634.3	607.3
51°	624.9	662.5	684.1	711.1	726.0	744.0	742.0	715.0	652.4	606.1	579.5
51.5°	597.1	633.9	654.3	681.3	697.0	714.2	713.4	686.8	623.8	578.0	551.7
52°	570.5	604.6	624.9	652.7	668.4	684.1	683.3	658.6	596.0	550.5	523.9
52.5°	544.3	576.4	596.4	622.6	639.4	654.7	653.5	630.0	568.9	523.5	496.5
53°	518.0	548.2	567.0	595.6	611.2	625.3	624.2	602.6	541.9	497.3	469.5
53.5°	491.8	520.4	538.8	567.4	583.4	596.4	595.2	575.2	514.9	471.1	443.3
54°	466.0	492.2	511.4	539.6	555.6	567.8	565.8	548.2	488.7	446.4	417.8
54.5°	440.9	464.8	484.4	511.0	527.8	539.2	537.2	521.2	463.2	422.9	393.1
55°	416.6	438.6	458.1	485.5	501.6	511.4	509.4	494.9	437.4	397.8	368.5
55.5°	392.3	411.9	431.9	459.7	475.4	484.0	480.8	468.3	412.3	373.6	346.1
56°	368.5	386.9	406.8	433.5	448.7	457.0	453.4	443.3	387.7	351.6	323.4
56.5°	345.0	362.2	382.2	407.2	422.9	429.9	426.8	417.0	364.5	329.7	301.1
57°	322.3	337.5	358.3	384.1	397.8	404.5	401.0	392.3	341.8	308.2	278.4
57.5°	299.9	314.0	334.8	359.8	373.6	379.0	375.5	368.5	319.1	286.2	257.7
58°	277.6	291.3	311.3	336.4	350.1	354.8	351.6	345.0	296.0	264.3	237.3
58.5°	256.9	269.4	289.0	313.6	326.6	330.5	327.3	321.1	273.3	244.7	218.1
59°	235.7	248.6	267.8	291.7	303.1	306.2	303.5	297.2	252.2	224.4	199.7
59.5°	216.1	228.3	247.1	270.6	280.0	281.9	279.6	273.7	232.6	206.0	182.1
60°	196.6	208.3	226.7	249.8	257.7	260.0	257.3	252.2	212.6	187.6	165.2
60.5°	178.6	189.9	207.1	230.2	236.9	238.5	236.1	231.0	193.4	170.3	148.4
61°	160.5	171.5	189.1	210.3	216.1	217.7	215.0	209.9	175.0	153.1	133.1
61.5°	143.7	154.7	171.1	191.5	196.2	197.3	195.0	190.3	158.2	137.4	119.0
62°	129.2	138.2	154.3	173.9	177.0	178.2	176.2	171.1	140.6	121.8	104.5
62.5°	115.1	124.9	138.2	156.2	158.2	159.8	157.8	151.9	124.5	107.3	91.6
63°	100.6	111.6	124.9	139.8	140.6	142.1	140.2	133.9	108.9	93.6	79.5
63.5°	86.5	98.3	111.6	125.3	123.7	125.3	123.3	117.5	94.4	81.1	68.5
64°	72.4	85.0	98.3	110.8	107.7	109.2	108.1	101.8	80.7	68.9	58.0
64.5°	61.1	72.0	85.0	96.7	92.4	94.4	93.2	86.9	68.1	58.0	48.6
65°	50.9	61.1	71.7	82.2	78.7	80.7	79.5	73.2	56.0	50.1	41.5
65.5°	42.3	51.3	60.7	68.1	65.8	67.3	66.6	61.1	47.0	41.9	34.8
66°	34.5	41.9	50.5	56.4	54.0	55.6	54.8	52.1	38.4	33.7	28.2





TEST NUMBER: P776251

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-4000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	16.8	20.8	26.2	27.8	29.4	30.5	29.8	25.8	11.7	12.9	10.6
68°	14.1	15.7	20.0	20.8	21.1	21.9	21.1	17.2	7.0	9.0	7.4
68.5°	11.7	12.5	14.5	15.3	13.3	13.7	12.9	11.7	4.7	5.9	5.5
69°	9.0	9.8	11.7	12.5	9.0	9.4	8.6	7.8	4.3	4.7	4.3
69.5°	6.7	7.0	9.4	9.8	6.3	6.3	5.9	5.5	4.3	4.3	4.3
70°	3.9	4.3	6.7	6.7	4.3	4.3	4.3	4.3	3.9	3.9	3.9
70.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
71°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
71.5°	3.5	3.5	3.5	3.9	3.5	3.5	3.9	3.9	3.9	3.9	3.9
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	2.0	2.0	2.3
79°	2.0	2.0	2.3	2.3	2.3	2.3	2.3	2.3	2.0	2.0	2.0
79.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
80°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.6	1.6	2.0
80.5°	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.6	1.6	2.0
81°	1.6	1.6	2.0	2.0	2.0	2.0	2.0	1.6	1.6	1.6	1.6
81.5°	1.6	1.6	1.6	2.0	1.6	1.6	1.6	1.6	1.2	1.2	1.6
82°	1.2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.2	1.2	1.6
82.5°	1.2	1.2	1.6	1.6	1.6	1.6	1.6	1.2	0.8	1.2	1.2
83°	1.2	1.2	1.6	1.6	1.6	1.6	1.6	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: P776251  
CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-4000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776251

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-4000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1930.4	1930.4	1930.4	1930.4	1930.4	1930.4
0.5°	1929.2	1929.2	1930.0	1929.6	1928.9	1930.0
1°	1928.1	1928.1	1928.9	1928.5	1928.1	1929.6
1.5°	1926.5	1926.5	1927.3	1927.3	1926.9	1928.9
2°	1925.3	1924.9	1925.3	1925.7	1924.9	1928.1
2.5°	1923.8	1923.0	1923.8	1923.4	1923.4	1926.5
3°	1921.8	1921.0	1921.4	1921.4	1921.8	1925.3
3.5°	1919.5	1919.1	1919.1	1919.5	1919.9	1923.8
4°	1917.1	1916.7	1916.7	1917.1	1917.9	1922.6
4.5°	1914.4	1914.0	1914.0	1914.4	1915.5	1920.6
5°	1911.6	1910.8	1910.8	1911.6	1912.8	1918.7
5.5°	1908.9	1908.1	1907.7	1908.5	1910.5	1916.3
6°	1905.8	1904.6	1904.2	1905.8	1907.3	1913.6
6.5°	1902.6	1901.4	1900.7	1902.2	1904.2	1910.8
7°	1899.1	1897.9	1897.5	1898.7	1901.1	1908.5
7.5°	1895.2	1894.0	1893.6	1894.8	1897.9	1905.4
8°	1891.3	1889.7	1889.7	1890.5	1894.0	1902.2
8.5°	1887.0	1885.8	1885.4	1886.6	1889.7	1898.7
9°	1882.7	1881.1	1880.7	1882.3	1885.4	1894.8
9.5°	1878.3	1876.4	1876.0	1877.6	1881.1	1890.9
10°	1873.6	1871.7	1870.9	1872.9	1876.4	1887.0
10.5°	1868.6	1867.0	1866.2	1868.2	1872.1	1882.7
11°	1863.5	1861.9	1861.1	1863.1	1866.6	1878.3
11.5°	1858.0	1856.0	1855.6	1857.2	1861.5	1874.0
12°	1852.5	1850.5	1849.8	1851.7	1856.4	1868.6
12.5°	1847.0	1844.7	1843.9	1845.8	1850.5	1863.9
13°	1840.8	1838.4	1837.2	1840.0	1844.7	1858.4
13.5°	1834.5	1832.1	1831.0	1833.7	1838.8	1853.3
14°	1828.2	1825.5	1824.7	1827.4	1832.5	1847.4
14.5°	1821.6	1818.8	1817.7	1820.8	1826.3	1841.5
15°	1814.5	1811.4	1810.6	1813.3	1819.2	1835.3
15.5°	1807.5	1804.3	1803.6	1806.3	1812.2	1829.0
16°	1800.0	1796.9	1796.5	1799.2	1805.1	1822.4
16.5°	1793.0	1789.5	1788.7	1791.8	1797.7	1815.7
17°	1785.2	1781.2	1780.5	1784.0	1790.2	1809.0
17.5°	1777.3	1773.4	1772.6	1776.1	1782.4	1801.6
18°	1769.1	1765.2	1764.4	1767.5	1775.0	1793.8
18.5°	1760.5	1756.6	1755.8	1759.3	1766.7	1786.3
19°	1752.3	1748.0	1746.8	1750.7	1757.7	1778.5
19.5°	1743.3	1738.9	1738.2	1741.7	1749.5	1770.7
20°	1734.2	1729.9	1729.2	1732.7	1741.3	1762.4
20.5°	1725.2	1720.5	1719.4	1723.3	1731.9	1753.8
21°	1715.8	1710.8	1710.0	1713.9	1722.5	1745.2

TEST NUMBER: P776251

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-4000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1686.1	1681.4	1679.8	1683.7	1693.9	1717.8
23°	1675.9	1671.2	1669.6	1673.9	1683.3	1708.4
23.5°	1665.3	1660.2	1659.1	1663.4	1672.8	1698.6
24°	1654.8	1649.3	1647.7	1652.8	1662.6	1688.4
24.5°	1643.8	1638.3	1636.7	1641.4	1652.0	1678.3
25°	1632.8	1627.4	1625.8	1630.5	1641.4	1667.7
25.5°	1621.5	1615.6	1614.0	1618.7	1630.1	1657.1
26°	1610.1	1603.9	1602.3	1607.4	1618.7	1646.5
26.5°	1598.0	1592.1	1590.5	1596.0	1607.0	1636.0
27°	1586.6	1580.0	1578.8	1583.9	1595.2	1624.6
27.5°	1574.1	1567.8	1566.3	1571.7	1583.5	1613.3
28°	1562.0	1554.9	1553.7	1559.2	1571.4	1601.5
28.5°	1549.4	1542.8	1541.2	1547.1	1558.8	1589.8
29°	1536.9	1530.2	1528.3	1534.2	1546.7	1578.0
29.5°	1523.6	1517.3	1515.4	1521.6	1534.2	1565.9
30°	1511.1	1503.6	1502.4	1508.3	1521.6	1553.7
30.5°	1497.4	1490.7	1488.7	1495.4	1508.3	1541.2
31°	1484.0	1477.0	1475.0	1481.3	1495.0	1528.7
31.5°	1470.7	1463.7	1461.3	1468.4	1482.1	1515.4
32°	1457.0	1449.6	1447.2	1455.1	1468.8	1502.4
32.5°	1442.9	1435.9	1433.9	1441.0	1455.5	1489.1
33°	1428.4	1421.8	1419.8	1426.5	1441.4	1475.8
33.5°	1414.3	1407.3	1405.3	1412.8	1426.9	1462.5
34°	1399.9	1392.4	1390.8	1398.7	1412.8	1448.8
34.5°	1385.4	1377.9	1376.0	1383.8	1398.7	1434.7
35°	1370.1	1362.7	1361.1	1368.5	1383.4	1420.6
35.5°	1354.0	1347.4	1345.8	1353.6	1369.3	1405.7
36°	1338.4	1330.9	1329.8	1338.4	1354.0	1391.6
36.5°	1321.5	1314.1	1313.3	1322.3	1337.6	1376.4
37°	1303.1	1296.5	1296.1	1304.7	1321.1	1361.1
37.5°	1281.6	1276.1	1276.9	1287.5	1304.7	1344.6
38°	1258.5	1253.4	1254.6	1266.3	1283.9	1328.2
38.5°	1234.6	1228.3	1231.1	1243.2	1262.0	1309.4
39°	1208.8	1203.3	1206.4	1219.3	1239.3	1289.0
39.5°	1182.1	1176.7	1180.6	1193.9	1215.0	1266.7
40°	1155.1	1149.2	1153.6	1167.7	1189.6	1241.7
40.5°	1127.7	1121.1	1125.8	1141.0	1162.2	1213.9
41°	1101.1	1093.3	1098.3	1114.4	1134.4	1186.8
41.5°	1074.1	1064.3	1069.8	1086.2	1105.0	1159.4
42°	1047.0	1037.7	1041.6	1058.4	1076.4	1131.6
42.5°	1020.8	1009.5	1013.0	1030.2	1047.4	1104.2
43°	994.2	982.4	983.6	1001.2	1017.3	1077.2
43.5°	968.0	953.5	954.2	971.9	987.9	1049.4

TEST NUMBER: P776251

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-4000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	886.5	871.2	865.8	881.4	901.4	966.8
45.5°	858.7	843.0	836.4	851.3	872.0	939.0
46°	830.5	816.0	808.6	821.1	843.8	910.8
46.5°	801.5	787.0	779.6	791.0	815.2	882.2
47°	773.3	760.4	751.0	760.8	787.0	852.8
47.5°	745.2	731.4	722.0	731.1	758.1	823.5
48°	716.6	705.2	695.0	701.7	729.9	794.5
48.5°	688.8	677.0	666.4	671.9	701.7	765.1
49°	661.4	650.4	639.4	643.7	673.9	736.5
49.5°	633.6	623.8	611.6	615.5	646.1	708.0
50°	606.1	597.1	584.6	587.4	618.3	680.2
50.5°	580.3	570.9	557.6	559.9	591.3	652.0
51°	554.1	544.7	531.7	533.7	564.6	624.9
51.5°	527.8	519.6	505.5	507.5	537.6	597.1
52°	501.6	494.5	480.5	482.0	512.2	570.5
52.5°	476.9	469.9	455.0	456.6	486.3	544.3
53°	451.5	444.8	431.1	432.7	461.3	518.0
53.5°	426.4	420.9	406.4	409.2	436.2	491.8
54°	401.7	397.0	383.3	385.7	411.9	466.0
54.5°	378.6	374.3	361.0	363.4	388.0	440.9
55°	355.9	352.0	339.1	341.8	365.3	416.6
55.5°	333.6	329.3	318.0	320.7	342.2	392.3
56°	311.3	307.4	296.8	300.3	319.9	368.5
56.5°	289.0	286.2	276.4	280.4	298.0	345.0
57°	266.7	265.5	257.3	260.8	277.6	322.3
57.5°	246.3	245.5	238.5	242.0	256.9	299.9
58°	225.9	225.5	220.5	224.4	237.7	277.6
58.5°	206.4	206.7	203.2	207.1	218.1	256.9
59°	187.6	188.7	186.4	190.3	200.5	235.7
59.5°	169.5	171.5	170.7	174.2	183.3	216.1
60°	152.7	155.1	155.5	159.4	166.8	196.6
60.5°	136.7	138.2	140.6	144.1	150.4	178.6
61°	121.4	124.9	128.0	132.0	135.1	160.5
61.5°	106.5	112.0	115.5	119.4	122.2	143.7
62°	92.8	98.7	103.0	106.9	108.9	129.2
62.5°	80.7	85.4	90.5	94.4	95.5	115.1
63°	68.9	72.4	77.9	81.8	82.6	100.6
63.5°	58.3	61.5	67.3	71.3	71.3	86.5
64°	48.6	51.7	57.6	61.5	61.1	72.4
64.5°	41.9	43.1	48.6	52.1	50.9	61.1
65°	35.6	35.2	40.7	43.5	42.7	50.9
65.5°	29.0	28.6	33.3	35.6	34.8	42.3
66°	22.7	22.7	26.2	29.0	27.8	34.5



TEST NUMBER: P776251

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-4000lm-3000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	9.0	11.4	12.5	12.5	12.5	16.8
68°	6.7	9.0	9.8	10.6	9.0	14.1
68.5°	5.1	6.7	7.0	8.2	8.2	11.7
69°	4.3	4.3	4.3	6.3	7.0	9.0
69.5°	4.3	4.3	3.9	4.3	5.9	6.7
70°	3.9	3.9	3.9	3.9	4.7	3.9
70.5°	3.9	3.9	3.9	3.9	3.9	3.9
71°	3.9	3.9	3.9	3.9	3.5	3.9
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	2.0	2.3
79°	2.3	2.3	2.3	2.0	2.0	2.0
79.5°	2.0	2.0	2.0	2.0	2.0	2.0
80°	2.0	2.0	2.0	2.0	1.6	2.0
80.5°	2.0	2.0	2.0	2.0	1.6	1.6
81°	1.6	2.0	2.0	1.6	1.6	1.6
81.5°	1.6	1.6	1.6	1.6	1.2	1.6
82°	1.6	1.6	1.6	1.6	1.2	1.2
82.5°	1.6	1.6	1.6	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: P776251

CATALOG NUMBER: HCDJBL3040CSD-HCD41TRMB-4000lm-3000K

**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°	1736.2	1752.7	1769.1	1781.2	1784.8	1785.9	1780.5	1772.2	1751.5	1735.4	1719.4
22°	1727.2	1744.0	1760.5	1773.4	1776.9	1777.7	1773.0	1764.4	1742.5	1726.8	1710.0



44°	1022.4	1067.0	1111.7	1141.4	1145.7	1147.7	1138.7	1120.7	1060.4	1027.9	979.3
44.5°	994.6	1038.0	1082.7	1111.7	1115.6	1121.8	1113.6	1094.4	1029.8	998.9	950.7



66.5°	27.4	34.1	41.5	45.8	45.8	47.4	46.2	43.5	29.4	25.8	21.1
67°	21.9	27.0	33.3	36.0	37.6	38.8	38.0	34.5	20.8	17.6	14.5



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°	1706.1	1701.4	1699.8	1704.1	1712.7	1736.2
22°	1696.3	1691.6	1690.0	1693.9	1703.3	1727.2



44°	940.5	926.4	924.5	941.7	958.9	1022.4
44.5°	913.9	898.3	895.1	911.6	930.4	994.6



66.5°	16.4	18.0	20.4	22.7	21.5	27.4
67°	12.5	13.7	15.3	17.2	16.8	21.9

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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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Scaled Data Report



(END OF REPORT)