

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: P776353

Luminaire Tested: HCDJBL3040CSD-HCD61TRMB-4000lm-4000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776353
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B038)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL3040CSD-HCD61TRMB-4000lm-4000K
Description: 6 INCH ROUND SHALLOW-WIDE MATTE BLACK TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT
Ballast/Driver: -

Summary

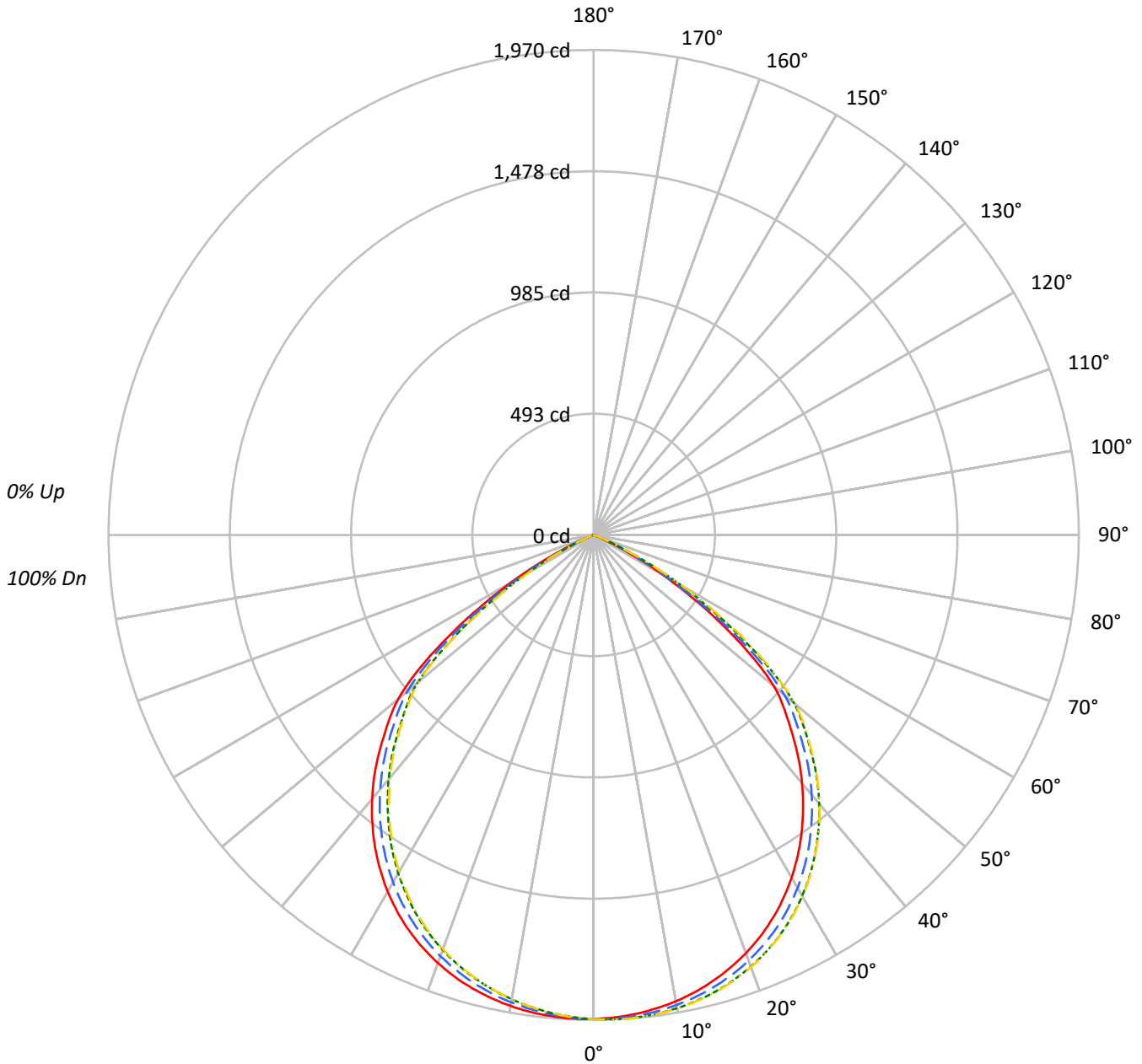
Lumens per Lamp: N/A
Luminaire Lumens: 4115.7 lumens
Efficiency: N/A
Efficacy: 106.9 lumens/watt
Spacing Criteria (0/90/45): 1.24 / 1.24 / 1.32
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

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										
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	100	100	100	100		
	1	112	108	105	102	109	106	103	100	102	99	97	98	96	94	95	93	92	90	90	90	90	90	90		
	2	104	97	92	88	101	96	91	87	92	88	85	89	86	83	86	83	81	79	79	79	79	79	79		
	3	96	88	81	76	94	86	80	75	83	78	74	81	76	73	78	75	71	69	69	69	69	69	69		
	4	89	79	72	66	87	78	71	65	75	69	65	73	68	64	71	67	63	61	61	61	61	61	61		
	5	82	71	64	58	81	70	63	58	68	62	57	66	61	56	65	60	56	54	54	54	54	54	54		
	6	77	65	57	51	75	64	57	51	62	56	51	61	55	50	59	54	50	48	48	48	48	48	48		
	7	71	59	51	46	70	58	51	46	57	50	45	56	50	45	54	49	45	43	43	43	43	43	43		
	8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40	39	39	39	39	39	39		
	9	62	50	42	37	61	49	42	37	48	42	37	47	41	37	46	41	37	35	35	35	35	35	35		
	10	58	46	39	34	57	46	39	34	45	38	34	44	38	34	43	38	34	32	32	32	32	32	32		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	107826	107826	107826	107826
5°	107484	108282	107996	107286
10°	107045	108682	108148	106622
15°	106419	108911	108179	105801
20°	105464	108871	107932	104642
25°	103984	108369	107250	102913
30°	101756	107213	105864	100452
35°	98544	105123	103584	97032
40°	94212	101912	100152	92631
45°	88412	96971	95010	86761
50°	81490	90487	88253	79597
55°	61589	71367	69015	59697
60°	35699	44624	42902	34997
65°	10974	16941	15527	11869
70°	192	321	192	192
75°	85	169	85	85
80°	126	126	0	126
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 112.5°
 Vertical Angle: 45°
 Luminance: 97320 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	186.2	4.5
10°-20°	533.6	13.0
20°-30°	803.8	19.5
30°-40°	942.8	22.9
40°-50°	913.0	22.2
50°-60°	607.4	14.8
60°-70°	128.1	3.1
70°-80°	0.7	0.0
80°-90°	0.0	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°	1523.6	37.0
0°-40°	2466.4	59.9
0°-60°	3986.8	96.9
0°-90°	4115.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4115.7	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1967	1967	1967	1967	1967	
5°	1953	1968	1962	1950	1953	185
15°	1875	1919	1906	1864	1875	529
25°	1719	1792	1773	1701	1719	791
35°	1472	1571	1548	1450	1472	919
45°	1140	1251	1226	1119	1140	879
55°	644	747	722	625	644	572
65°	85	131	120	92	85	107
75°	0	1	0	0	0	1
85°	0	0	0	0	0	0
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°	1966.9	1966.9	1966.9	1966.9	1966.9	1966.9	1966.9	1966.9	1966.9	1966.9	1966.9
0.5°	1965.7	1965.7	1966.9	1968.1	1967.7	1968.1	1968.1	1967.7	1966.5	1966.1	1966.5
1°	1964.9	1965.7	1966.9	1968.5	1968.5	1969.0	1969.0	1968.1	1966.9	1965.7	1965.7
1.5°	1964.1	1964.9	1966.9	1968.1	1969.0	1969.4	1969.4	1968.5	1966.9	1965.7	1965.3
2°	1962.9	1964.1	1966.5	1968.1	1969.4	1970.2	1970.2	1968.5	1966.9	1964.9	1964.5
2.5°	1961.7	1963.3	1965.7	1968.1	1969.4	1970.2	1970.2	1968.5	1966.5	1964.5	1963.3
3°	1960.1	1962.5	1965.3	1967.7	1969.4	1970.2	1970.2	1968.5	1966.1	1963.7	1962.1
3.5°	1958.9	1961.3	1964.5	1967.3	1969.0	1970.2	1970.2	1968.5	1965.3	1962.5	1960.5
4°	1956.9	1959.7	1963.7	1966.5	1969.0	1969.8	1969.8	1967.7	1964.5	1961.7	1959.3
4.5°	1955.3	1958.5	1962.5	1965.7	1968.1	1969.4	1969.4	1967.3	1963.7	1960.5	1957.7
5°	1953.2	1956.9	1960.9	1964.9	1967.7	1969.0	1968.5	1966.5	1962.5	1958.9	1955.7
5.5°	1951.2	1954.8	1959.7	1964.1	1966.9	1968.1	1967.7	1965.3	1961.3	1957.3	1953.6
6°	1948.4	1952.8	1958.5	1962.9	1965.7	1967.3	1966.9	1964.1	1960.1	1955.3	1951.2
6.5°	1946.0	1950.8	1956.5	1961.3	1964.9	1966.1	1965.7	1962.9	1958.5	1953.6	1948.8
7°	1943.2	1948.4	1954.4	1959.7	1963.3	1964.9	1964.5	1961.3	1956.9	1951.2	1946.4
7.5°	1940.3	1946.0	1952.4	1958.1	1962.1	1963.7	1963.3	1959.7	1954.4	1949.2	1944.0
8°	1937.5	1943.6	1950.0	1956.1	1960.5	1962.1	1961.7	1958.1	1952.8	1946.8	1941.1
8.5°	1933.9	1940.7	1947.6	1954.0	1958.5	1960.5	1960.1	1956.1	1950.4	1944.0	1937.9
9°	1930.7	1937.5	1944.8	1951.6	1956.9	1958.5	1958.1	1954.0	1948.0	1941.5	1935.1
9.5°	1927.0	1934.3	1942.0	1949.2	1954.4	1956.5	1956.1	1951.6	1945.6	1938.3	1931.5
10°	1923.0	1931.1	1939.1	1946.4	1952.4	1954.0	1953.6	1949.6	1942.8	1935.1	1928.3
10.5°	1919.4	1927.4	1935.9	1943.6	1949.6	1951.6	1951.2	1946.8	1939.9	1931.9	1924.6
11°	1915.0	1923.8	1932.7	1940.7	1947.2	1949.2	1948.4	1944.0	1937.1	1928.7	1920.6
11.5°	1910.9	1919.8	1929.1	1937.1	1944.4	1946.4	1945.6	1940.7	1933.5	1925.0	1917.0
12°	1906.1	1915.8	1925.4	1933.9	1941.1	1943.6	1942.8	1937.9	1930.3	1921.4	1912.5
12.5°	1901.7	1911.3	1921.4	1930.3	1937.9	1940.3	1939.5	1934.7	1927.0	1917.4	1908.5
13°	1896.4	1906.9	1917.4	1926.6	1934.3	1937.1	1935.9	1931.1	1923.0	1913.3	1903.7
13.5°	1891.6	1902.1	1913.3	1922.6	1931.1	1933.5	1932.7	1927.4	1919.0	1908.9	1898.8
14°	1886.3	1897.2	1908.5	1918.6	1927.0	1929.9	1928.7	1923.4	1915.0	1904.5	1894.0
14.5°	1880.7	1892.4	1904.1	1914.6	1923.0	1925.8	1924.6	1919.4	1910.5	1899.6	1889.2
15°	1875.1	1886.7	1899.2	1909.7	1919.0	1921.8	1920.6	1915.0	1906.1	1894.8	1883.9
15.5°	1869.0	1881.5	1894.4	1905.3	1914.6	1917.4	1916.6	1910.9	1901.3	1890.0	1878.7
16°	1863.4	1875.9	1889.2	1900.4	1910.1	1912.9	1911.7	1906.1	1896.4	1884.7	1872.6
16.5°	1856.9	1869.8	1883.5	1895.6	1905.3	1908.1	1906.9	1901.3	1891.6	1879.1	1866.6
17°	1850.5	1863.8	1877.9	1890.0	1900.4	1903.3	1902.1	1896.0	1886.3	1873.4	1860.6
17.5°	1844.0	1857.7	1872.2	1884.3	1895.2	1898.4	1897.2	1891.2	1880.7	1867.4	1854.1
18°	1837.2	1851.7	1866.2	1878.7	1889.6	1892.8	1891.6	1885.1	1875.1	1861.4	1847.7
18.5°	1829.9	1844.8	1860.1	1873.0	1884.3	1887.1	1885.9	1879.5	1869.0	1855.3	1841.2
19°	1822.7	1837.6	1853.3	1867.0	1878.3	1881.5	1880.3	1873.4	1863.0	1848.9	1834.4
19.5°	1815.4	1830.7	1846.8	1860.6	1872.6	1875.9	1874.3	1867.4	1856.5	1842.4	1827.5
20°	1807.8	1823.9	1840.0	1854.1	1866.2	1869.4	1868.2	1861.4	1850.1	1835.6	1820.7
20.5°	1799.7	1816.2	1832.7	1847.7	1859.7	1863.0	1861.8	1854.5	1843.6	1828.3	1812.6
21°	1792.0	1808.2	1825.9	1840.8	1852.9	1856.5	1854.9	1848.1	1836.8	1821.1	1805.3



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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°	1766.3	1784.4	1802.5	1818.2	1831.9	1835.2	1833.6	1826.3	1814.2	1798.1	1780.8
23°	1757.4	1775.9	1794.5	1810.6	1824.3	1827.9	1825.9	1818.6	1806.6	1789.6	1771.9
23.5°	1748.1	1767.1	1786.4	1802.5	1816.6	1820.3	1818.6	1811.0	1798.9	1781.2	1763.4
24°	1738.9	1758.2	1777.5	1794.5	1808.6	1812.2	1810.2	1802.5	1790.4	1772.7	1754.6
24.5°	1728.8	1748.5	1768.7	1785.6	1800.5	1804.1	1802.1	1794.5	1782.0	1763.8	1745.3
25°	1719.1	1738.9	1759.4	1776.7	1791.6	1795.3	1793.3	1786.0	1773.1	1755.0	1735.6
25.5°	1709.0	1729.6	1750.1	1767.9	1783.2	1786.8	1784.8	1777.1	1764.2	1745.3	1726.0
26°	1699.0	1719.5	1740.9	1758.6	1774.3	1777.5	1775.9	1767.9	1755.0	1735.6	1716.3
26.5°	1688.1	1709.4	1730.8	1749.3	1765.0	1768.7	1766.7	1758.6	1745.7	1726.0	1705.8
27°	1677.6	1699.0	1720.7	1739.7	1755.4	1759.4	1757.0	1749.3	1735.6	1715.9	1695.7
27.5°	1666.3	1688.1	1710.2	1729.6	1746.1	1749.7	1747.7	1739.7	1726.0	1705.8	1685.3
28°	1655.0	1677.2	1699.8	1719.1	1736.0	1739.3	1737.6	1729.6	1715.5	1694.9	1674.4
28.5°	1643.3	1666.3	1689.3	1709.0	1725.6	1729.6	1727.6	1719.5	1705.0	1684.4	1663.5
29°	1631.7	1654.6	1678.0	1698.6	1715.1	1718.7	1717.1	1709.0	1694.9	1673.6	1652.2
29.5°	1620.0	1643.3	1666.7	1687.7	1705.0	1708.2	1706.2	1698.2	1683.6	1662.7	1640.5
30°	1607.5	1631.3	1655.4	1676.4	1693.7	1697.3	1695.3	1687.3	1672.4	1650.6	1628.8
30.5°	1595.0	1619.6	1643.7	1664.7	1682.4	1686.1	1684.4	1676.4	1661.1	1638.9	1617.2
31°	1582.5	1607.1	1631.7	1653.0	1671.2	1674.4	1672.8	1664.7	1649.4	1627.2	1604.7
31.5°	1569.2	1594.6	1619.6	1641.3	1659.5	1662.7	1660.7	1653.0	1637.3	1615.1	1592.6
32°	1556.3	1581.7	1607.1	1629.6	1647.4	1651.0	1649.0	1640.9	1625.2	1602.6	1579.7
32.5°	1542.6	1568.8	1594.2	1616.7	1635.3	1638.5	1637.3	1629.2	1613.1	1590.2	1566.8
33°	1529.3	1555.5	1581.7	1604.3	1623.2	1626.4	1624.8	1616.3	1600.6	1577.3	1553.9
33.5°	1515.6	1542.2	1568.4	1591.4	1610.3	1613.5	1611.9	1603.5	1587.7	1564.4	1540.6
34°	1501.5	1528.5	1555.1	1578.5	1597.4	1601.0	1599.0	1591.0	1574.4	1551.1	1526.9
34.5°	1487.0	1514.8	1541.4	1564.8	1584.1	1587.7	1586.1	1577.7	1561.1	1537.4	1513.2
35°	1472.5	1500.7	1527.3	1551.5	1570.8	1574.0	1572.4	1564.4	1547.8	1523.3	1499.1
35.5°	1458.0	1486.2	1513.6	1537.4	1557.1	1560.7	1558.7	1550.7	1533.7	1509.6	1485.0
36°	1442.7	1471.3	1499.1	1523.7	1543.4	1546.6	1545.0	1537.0	1519.6	1495.9	1470.5
36.5°	1428.2	1456.8	1484.6	1509.2	1529.3	1532.9	1531.3	1522.9	1505.5	1481.3	1456.0
37°	1412.4	1441.9	1469.7	1494.2	1515.2	1518.4	1516.8	1508.8	1491.0	1466.4	1441.1
37.5°	1396.7	1426.5	1454.8	1479.7	1500.3	1503.9	1501.9	1494.2	1476.1	1451.9	1426.5
38°	1380.6	1411.2	1439.4	1464.4	1485.8	1489.0	1487.4	1478.9	1461.6	1436.2	1411.2
38.5°	1365.3	1395.5	1424.5	1449.1	1470.9	1474.1	1472.9	1464.0	1446.3	1421.7	1395.5
39°	1349.6	1380.2	1408.8	1434.2	1455.6	1458.8	1457.6	1449.1	1430.6	1406.0	1380.2
39.5°	1333.1	1364.1	1392.7	1418.1	1439.8	1443.5	1441.9	1433.4	1415.3	1390.3	1364.1
40°	1316.5	1347.6	1377.0	1402.0	1424.1	1427.8	1426.1	1418.1	1399.5	1374.2	1348.4
40.5°	1300.0	1331.4	1360.5	1385.8	1408.0	1412.0	1410.4	1401.6	1383.4	1358.4	1332.2
41°	1283.1	1314.5	1343.9	1368.9	1391.9	1395.9	1394.3	1385.4	1367.3	1341.9	1315.7
41.5°	1265.8	1297.6	1327.0	1352.8	1375.0	1379.4	1378.2	1368.9	1350.4	1325.4	1299.2
42°	1248.8	1280.3	1310.1	1335.5	1358.4	1362.9	1361.3	1352.4	1333.9	1308.5	1282.3
42.5°	1231.5	1263.7	1292.8	1318.1	1341.5	1345.9	1344.7	1335.1	1316.5	1291.9	1265.4
43°	1213.4	1246.0	1275.0	1300.4	1324.2	1328.2	1327.4	1317.7	1299.2	1273.8	1248.0
43.5°	1195.6	1227.5	1257.3	1282.3	1306.1	1310.9	1309.7	1300.0	1281.5	1256.1	1230.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1140.4	1172.3	1201.3	1226.3	1250.8	1255.3	1254.9	1244.4	1225.5	1200.5	1174.7
45.5°	1121.9	1153.3	1182.7	1207.3	1231.9	1237.1	1236.3	1225.5	1206.5	1181.5	1155.7
46°	1103.8	1135.2	1164.2	1188.8	1213.4	1219.0	1217.8	1207.3	1188.0	1162.6	1137.6
46.5°	1086.0	1117.5	1146.1	1170.7	1195.2	1201.7	1200.5	1189.2	1169.0	1144.5	1119.1
47°	1068.7	1099.7	1128.3	1152.5	1177.1	1183.5	1182.7	1171.1	1150.9	1125.9	1100.9
47.5°	1051.4	1082.4	1110.6	1134.8	1159.4	1165.8	1165.0	1153.3	1133.2	1108.2	1083.6
48°	1034.0	1064.7	1092.5	1116.7	1141.6	1148.5	1147.7	1136.0	1115.4	1090.5	1066.3
48.5°	1017.1	1046.9	1075.1	1098.9	1123.9	1132.0	1130.4	1118.3	1097.3	1073.1	1049.0
49°	998.6	1028.0	1055.0	1078.8	1104.2	1112.2	1111.0	1098.9	1078.0	1053.4	1029.2
49.5°	978.4	1007.8	1034.0	1057.0	1083.2	1090.9	1089.7	1077.6	1056.6	1032.0	1008.7
50°	955.5	985.7	1011.1	1032.8	1061.0	1068.7	1067.9	1055.4	1034.8	1010.3	986.1
50.5°	930.1	958.3	985.7	1008.3	1036.5	1043.3	1041.3	1030.4	1010.7	984.9	960.7
51°	902.3	930.1	957.5	980.8	1009.5	1015.9	1014.3	1004.2	984.1	957.5	932.9
51.5°	872.4	900.3	927.3	951.8	980.8	986.9	986.1	974.8	956.3	929.3	903.5
52°	840.6	869.6	896.2	920.4	949.8	957.5	956.7	945.0	925.6	899.0	874.1
52.5°	809.6	838.2	864.0	886.1	918.0	927.7	926.9	914.0	893.0	867.6	843.4
53°	777.3	805.2	830.5	851.5	884.9	895.4	895.4	882.1	859.6	835.4	812.0
53.5°	744.7	772.1	796.7	816.4	850.7	864.0	864.4	848.7	824.9	802.3	779.8
54°	711.3	738.7	761.2	780.6	816.0	831.3	831.7	815.2	790.6	768.9	746.3
54.5°	678.2	705.2	725.8	744.7	781.0	797.9	798.7	780.6	755.6	733.4	713.7
55°	644.4	671.0	689.9	708.4	746.7	765.3	766.1	746.3	722.1	699.6	680.6
55.5°	610.5	635.9	654.0	672.6	711.7	729.8	731.8	710.9	687.1	664.1	646.4
56°	577.5	602.0	617.8	635.9	675.8	695.1	697.2	676.6	653.2	628.6	613.3
56.5°	544.4	567.8	581.9	602.0	640.7	660.1	662.1	641.5	617.8	594.0	579.5
57°	510.6	533.5	546.0	566.6	606.1	625.0	627.4	607.7	584.7	558.9	546.0
57.5°	478.3	499.3	511.4	531.9	571.8	589.6	592.4	573.4	550.5	525.5	512.6
58°	446.5	465.8	476.7	498.5	537.6	554.5	557.3	539.6	517.8	491.2	479.5
58.5°	415.5	432.4	442.5	465.4	504.1	519.8	522.7	506.5	485.6	458.6	447.3
59°	384.8	399.8	410.2	433.2	471.1	485.2	488.0	474.3	453.4	426.4	415.9
59.5°	354.2	366.7	378.4	401.4	438.8	451.7	452.9	441.7	421.1	395.3	385.2
60°	325.6	335.7	348.2	369.9	407.0	418.7	419.1	409.8	391.3	366.3	355.0
60.5°	296.6	305.1	317.5	339.3	377.2	387.3	388.1	379.6	361.5	337.3	324.8
61°	268.4	275.6	288.5	309.9	347.4	356.2	356.6	349.4	332.1	308.3	295.0
61.5°	241.0	247.4	261.1	281.7	317.5	324.8	325.2	319.2	302.2	279.3	264.8
62°	214.8	220.8	233.7	253.9	287.7	293.8	293.8	288.9	272.4	252.7	238.6
62.5°	189.8	195.4	208.3	227.3	257.9	262.7	262.3	258.7	245.0	226.5	212.4
63°	166.0	170.9	183.4	202.7	229.7	233.7	233.3	230.5	218.8	201.9	187.8
63.5°	142.7	148.3	160.4	178.1	203.1	206.7	206.3	203.9	193.8	178.1	164.8
64°	123.3	130.2	138.2	155.1	177.7	180.5	180.5	178.1	168.4	155.5	143.5
64.5°	104.0	112.4	120.5	135.0	153.5	156.0	155.5	153.1	143.9	134.6	122.9
65°	84.6	94.3	102.4	116.1	130.6	132.6	132.6	130.2	119.7	114.0	104.4
65.5°	65.7	76.6	84.2	96.7	108.4	111.2	111.2	108.0	96.7	95.1	87.0
66°	46.3	58.4	66.5	77.8	88.3	90.7	90.7	87.4	75.4	77.4	70.9



TEST NUMBER: P776353

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	14.9	25.0	29.0	31.8	45.9	47.6	47.6	45.1	33.9	40.7	37.5
68°	11.3	17.3	20.1	21.4	33.9	35.1	35.1	33.4	20.1	30.6	26.2
68.5°	8.1	14.1	12.5	13.3	21.8	22.6	22.6	21.4	6.4	20.1	15.3
69°	4.4	10.9	9.7	10.1	10.1	10.5	10.1	10.1	2.0	9.7	8.9
69.5°	1.2	7.7	6.9	7.3	4.8	4.8	4.8	4.8	1.2	4.8	4.4
70°	1.2	4.4	4.0	4.0	2.0	2.0	2.0	2.0	1.2	2.0	2.0
70.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
71°	0.8	0.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
71.5°	0.8	0.8	0.8	0.8	1.2	1.2	1.2	0.8	0.8	0.8	0.8
72°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
73°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
73.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
74°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
74.5°	0.4	0.4	0.8	0.8	0.8	0.8	0.8	0.8	0.4	0.8	0.8
75°	0.4	0.4	0.4	0.4	0.8	0.8	0.8	0.4	0.4	0.4	0.4
75.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
76°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
76.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
78°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
78.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
79°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
79.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.4	0.4
80.5°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.4
81°	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	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	0.0	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: P776353

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-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: P776353

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1966.9	1966.9	1966.9	1966.9	1966.9	1966.9
0.5°	1966.5	1966.1	1966.1	1966.5	1966.1	1965.7
1°	1965.7	1964.9	1964.9	1965.3	1965.3	1964.9
1.5°	1964.9	1963.7	1963.3	1964.1	1964.1	1964.1
2°	1963.7	1962.1	1961.7	1962.5	1962.5	1962.9
2.5°	1962.5	1960.1	1960.1	1960.5	1960.9	1961.7
3°	1960.9	1958.5	1958.1	1958.9	1959.3	1960.1
3.5°	1959.3	1956.5	1956.1	1956.9	1957.7	1958.9
4°	1957.3	1954.4	1953.6	1954.4	1955.7	1956.9
4.5°	1955.3	1952.0	1951.2	1952.0	1953.2	1955.3
5°	1953.2	1949.6	1948.8	1949.6	1950.8	1953.2
5.5°	1950.8	1946.8	1946.0	1946.8	1948.4	1951.2
6°	1948.4	1944.0	1943.2	1944.0	1945.6	1948.4
6.5°	1945.6	1941.1	1939.9	1940.7	1943.2	1946.0
7°	1942.8	1937.9	1936.7	1937.9	1939.9	1943.2
7.5°	1939.9	1934.3	1933.5	1934.3	1936.7	1940.3
8°	1936.7	1931.1	1929.5	1930.7	1933.5	1937.5
8.5°	1933.1	1927.4	1925.8	1927.0	1929.9	1933.9
9°	1929.9	1923.4	1921.8	1923.0	1925.8	1930.7
9.5°	1925.8	1919.8	1918.2	1919.0	1922.2	1927.0
10°	1922.2	1915.4	1913.7	1915.0	1918.2	1923.0
10.5°	1918.2	1910.9	1909.3	1910.5	1913.7	1919.4
11°	1914.1	1906.5	1904.5	1906.1	1909.3	1915.0
11.5°	1909.7	1902.1	1899.6	1900.8	1904.9	1910.9
12°	1905.3	1896.8	1894.8	1896.0	1900.0	1906.1
12.5°	1900.4	1892.0	1889.6	1890.8	1895.2	1901.7
13°	1895.6	1886.7	1884.3	1885.5	1890.0	1896.4
13.5°	1890.4	1881.5	1878.7	1879.9	1884.3	1891.6
14°	1885.5	1875.9	1873.0	1874.3	1879.1	1886.3
14.5°	1879.9	1869.8	1867.4	1868.6	1873.0	1880.7
15°	1874.3	1864.2	1861.0	1862.6	1867.4	1875.1
15.5°	1868.6	1857.7	1854.5	1856.1	1861.0	1869.0
16°	1862.2	1851.7	1848.1	1849.7	1854.9	1863.4
16.5°	1856.5	1844.8	1841.6	1843.2	1848.5	1856.9
17°	1850.1	1838.0	1834.8	1836.0	1841.6	1850.5
17.5°	1843.2	1831.1	1827.5	1829.1	1834.8	1844.0
18°	1836.8	1823.9	1820.3	1821.9	1827.5	1837.2
18.5°	1829.5	1816.6	1812.6	1814.2	1820.3	1829.9
19°	1822.3	1809.4	1804.9	1806.6	1812.6	1822.7
19.5°	1815.0	1801.7	1796.9	1798.5	1805.3	1815.4
20°	1807.4	1793.7	1788.8	1790.4	1797.3	1807.8
20.5°	1799.7	1785.2	1780.4	1782.0	1788.8	1799.7
21°	1791.6	1776.7	1771.9	1773.1	1780.4	1792.0



TEST NUMBER: P776353

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1765.9	1750.1	1744.5	1746.1	1753.8	1766.3
23°	1757.4	1740.9	1734.8	1736.4	1744.5	1757.4
23.5°	1748.1	1731.6	1725.6	1726.8	1735.2	1748.1
24°	1738.9	1721.9	1715.5	1716.7	1725.2	1738.9
24.5°	1729.2	1711.4	1705.4	1706.6	1715.1	1728.8
25°	1719.5	1701.4	1694.9	1696.1	1705.0	1719.1
25.5°	1709.4	1691.3	1684.0	1685.7	1694.5	1709.0
26°	1699.4	1680.4	1673.2	1674.8	1684.0	1699.0
26.5°	1688.5	1669.1	1661.9	1663.5	1672.8	1688.1
27°	1677.6	1657.9	1651.0	1652.2	1661.9	1677.6
27.5°	1667.1	1647.0	1639.7	1640.5	1650.6	1666.3
28°	1655.8	1635.3	1627.6	1628.8	1638.9	1655.0
28.5°	1644.2	1623.2	1615.5	1616.7	1626.8	1643.3
29°	1632.9	1611.5	1603.5	1605.1	1615.1	1631.7
29.5°	1621.2	1599.0	1591.0	1592.2	1603.0	1620.0
30°	1608.7	1586.9	1578.5	1579.7	1590.2	1607.5
30.5°	1596.6	1574.0	1565.2	1566.4	1577.7	1595.0
31°	1584.1	1560.7	1552.3	1553.5	1564.4	1582.5
31.5°	1571.2	1547.8	1538.6	1539.8	1551.1	1569.2
32°	1557.9	1534.5	1525.3	1526.5	1537.8	1556.3
32.5°	1545.0	1520.8	1511.6	1512.4	1524.5	1542.6
33°	1531.3	1507.1	1497.5	1498.7	1510.4	1529.3
33.5°	1518.0	1493.4	1483.4	1485.0	1496.3	1515.6
34°	1503.9	1479.3	1469.3	1470.1	1482.2	1501.5
34.5°	1490.2	1464.4	1454.3	1455.6	1467.6	1487.0
35°	1475.3	1449.9	1439.4	1441.1	1452.7	1472.5
35.5°	1461.2	1435.0	1424.9	1426.1	1437.8	1458.0
36°	1446.7	1420.5	1410.0	1411.2	1423.3	1442.7
36.5°	1432.2	1405.2	1395.1	1395.9	1408.4	1428.2
37°	1416.9	1389.9	1379.8	1380.6	1392.7	1412.4
37.5°	1401.6	1374.6	1363.7	1365.3	1377.4	1396.7
38°	1386.2	1358.8	1348.4	1349.6	1361.3	1380.6
38.5°	1370.1	1343.1	1332.6	1333.9	1345.5	1365.3
39°	1354.8	1327.0	1316.9	1317.7	1329.8	1349.6
39.5°	1338.7	1311.3	1300.8	1302.0	1313.7	1333.1
40°	1322.6	1294.4	1284.7	1285.5	1296.8	1316.5
40.5°	1306.5	1278.2	1268.2	1269.4	1280.3	1300.0
41°	1289.5	1261.3	1251.7	1252.9	1263.7	1283.1
41.5°	1273.0	1244.4	1234.3	1235.9	1246.8	1265.8
42°	1256.1	1227.5	1217.8	1219.0	1229.9	1248.8
42.5°	1239.2	1210.1	1200.9	1201.7	1212.6	1231.5
43°	1221.8	1192.4	1182.7	1184.4	1194.4	1213.4
43.5°	1203.7	1174.3	1165.0	1166.2	1176.3	1195.6



TEST NUMBER: P776353

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	1148.9	1119.1	1110.6	1111.4	1121.1	1140.4
45.5°	1130.4	1100.9	1092.1	1093.3	1102.5	1121.9
46°	1112.2	1082.8	1073.9	1075.1	1084.8	1103.8
46.5°	1093.7	1065.5	1056.6	1057.4	1067.1	1086.0
47°	1076.4	1048.1	1039.7	1040.5	1049.4	1068.7
47.5°	1059.0	1030.8	1022.4	1023.6	1032.0	1051.4
48°	1042.1	1013.9	1005.0	1006.6	1015.1	1034.0
48.5°	1024.8	996.6	988.1	988.9	997.8	1017.1
49°	1006.2	977.6	969.2	970.4	979.6	998.6
49.5°	986.1	957.1	949.4	950.6	959.5	978.4
50°	963.9	933.3	926.0	928.5	937.7	955.5
50.5°	937.7	906.7	900.3	903.1	911.5	930.1
51°	909.9	878.1	872.0	874.5	884.1	902.3
51.5°	880.5	849.1	842.2	844.2	855.1	872.4
52°	851.1	818.0	811.2	813.2	823.7	840.6
52.5°	820.1	786.6	779.8	781.0	791.0	809.6
53°	789.0	754.0	746.3	747.5	758.4	777.3
53.5°	756.8	722.1	712.9	714.5	725.4	744.7
54°	725.8	689.9	679.4	680.6	691.5	711.3
54.5°	692.7	657.3	646.8	647.2	658.5	678.2
55°	660.9	624.6	612.9	613.3	624.6	644.4
55.5°	627.4	593.2	579.9	579.1	591.2	610.5
56°	595.6	561.3	546.8	544.8	558.5	577.5
56.5°	562.6	529.9	514.6	512.2	526.3	544.4
57°	530.3	497.7	482.4	479.1	493.6	510.6
57.5°	498.5	467.1	450.5	447.3	461.8	478.3
58°	467.1	436.4	419.9	416.7	430.8	446.5
58.5°	435.6	406.6	389.7	385.7	399.4	415.5
59°	404.6	376.8	360.3	356.2	370.3	384.8
59.5°	375.2	347.4	332.1	327.6	341.3	354.2
60°	345.4	319.2	303.4	300.2	312.7	325.6
60.5°	315.9	291.4	276.8	273.6	285.3	296.6
61°	286.5	264.0	251.1	248.2	258.7	268.4
61.5°	259.5	238.6	226.9	224.1	232.9	241.0
62°	232.9	213.2	203.5	201.9	208.3	214.8
62.5°	207.1	188.6	181.3	179.7	184.6	189.8
63°	182.1	166.0	160.4	159.2	161.6	166.0
63.5°	158.8	144.3	139.8	139.0	140.2	142.7
64°	136.6	126.5	123.3	122.5	122.9	123.3
64.5°	116.1	108.8	106.8	106.4	105.6	104.0
65°	97.1	91.5	90.3	89.9	88.3	84.6
65.5°	79.8	73.7	73.7	73.7	70.9	65.7
66°	63.3	56.4	59.6	60.4	56.4	46.3



TEST NUMBER: P776353

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-4000lm-4000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	33.0	23.4	26.6	27.4	23.8	14.9
68°	23.0	16.1	18.5	18.9	16.5	11.3
68.5°	13.3	12.5	11.7	12.1	12.5	8.1
69°	8.1	8.9	8.9	9.3	8.9	4.4
69.5°	4.0	4.8	6.4	6.4	4.8	1.2
70°	2.0	1.2	3.6	3.6	1.2	1.2
70.5°	1.2	1.2	1.2	1.2	1.2	1.2
71°	0.8	0.8	0.8	0.8	0.8	0.8
71.5°	0.8	0.8	0.8	0.8	0.8	0.8
72°	0.8	0.8	0.8	0.8	0.8	0.8
72.5°	0.8	0.8	0.8	0.8	0.8	0.8
73°	0.8	0.8	0.8	0.8	0.8	0.8
73.5°	0.8	0.8	0.8	0.8	0.8	0.8
74°	0.8	0.8	0.8	0.8	0.8	0.8
74.5°	0.8	0.4	0.4	0.4	0.4	0.4
75°	0.4	0.4	0.4	0.4	0.4	0.4
75.5°	0.4	0.4	0.4	0.4	0.4	0.4
76°	0.4	0.4	0.4	0.4	0.4	0.4
76.5°	0.4	0.4	0.4	0.4	0.4	0.4
77°	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.4	0.4	0.4	0.4	0.4	0.4
78°	0.4	0.4	0.4	0.4	0.4	0.4
78.5°	0.4	0.4	0.4	0.4	0.4	0.4
79°	0.4	0.4	0.4	0.4	0.4	0.4
79.5°	0.4	0.4	0.4	0.4	0.4	0.4
80°	0.4	0.4	0.4	0.4	0.4	0.4
80.5°	0.4	0.4	0.4	0.4	0.0	0.0
81°	0.0	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	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: P776353

CATALOG NUMBER: HCDJBL3040CSD-HCD61TRMB-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





21.5°	1783.2	1800.5	1818.2	1833.6	1846.4	1849.7	1848.1	1841.2	1829.5	1813.4	1797.3
22°	1775.1	1792.4	1810.6	1826.3	1839.2	1842.8	1840.8	1833.6	1822.3	1805.7	1789.2



44°	1177.1	1208.9	1237.9	1264.1	1287.5	1292.4	1291.5	1281.5	1262.5	1237.9	1211.8
44.5°	1158.6	1190.8	1219.8	1245.2	1269.4	1275.0	1272.6	1263.3	1244.0	1219.4	1193.2



66.5°	33.4	45.5	52.4	58.8	70.1	72.5	72.5	68.9	61.7	61.7	59.6
67°	23.0	34.3	39.9	44.3	58.0	60.0	60.0	56.8	48.0	51.2	48.8



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°	1783.2	1768.3	1763.0	1764.2	1771.9	1783.2
22°	1774.7	1759.4	1754.2	1755.4	1763.0	1775.1



44°	1185.6	1155.7	1146.9	1147.7	1158.2	1177.1
44.5°	1167.4	1137.6	1128.7	1129.5	1139.6	1158.6



66.5°	53.2	43.1	47.6	47.6	43.9	33.4
67°	43.1	32.2	36.3	36.7	33.0	23.0

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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)