

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: P776297

Luminaire Tested: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3500K

Issue Date: 2/7/2024

Test Information

Test Method: LM-79-2019
Report Number: P776297
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-3500K
Description: 4 INCH ROUND MEDIUM LENSED WALLWASH KIT
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3500K CCT
Ballast/Driver: -

Summary

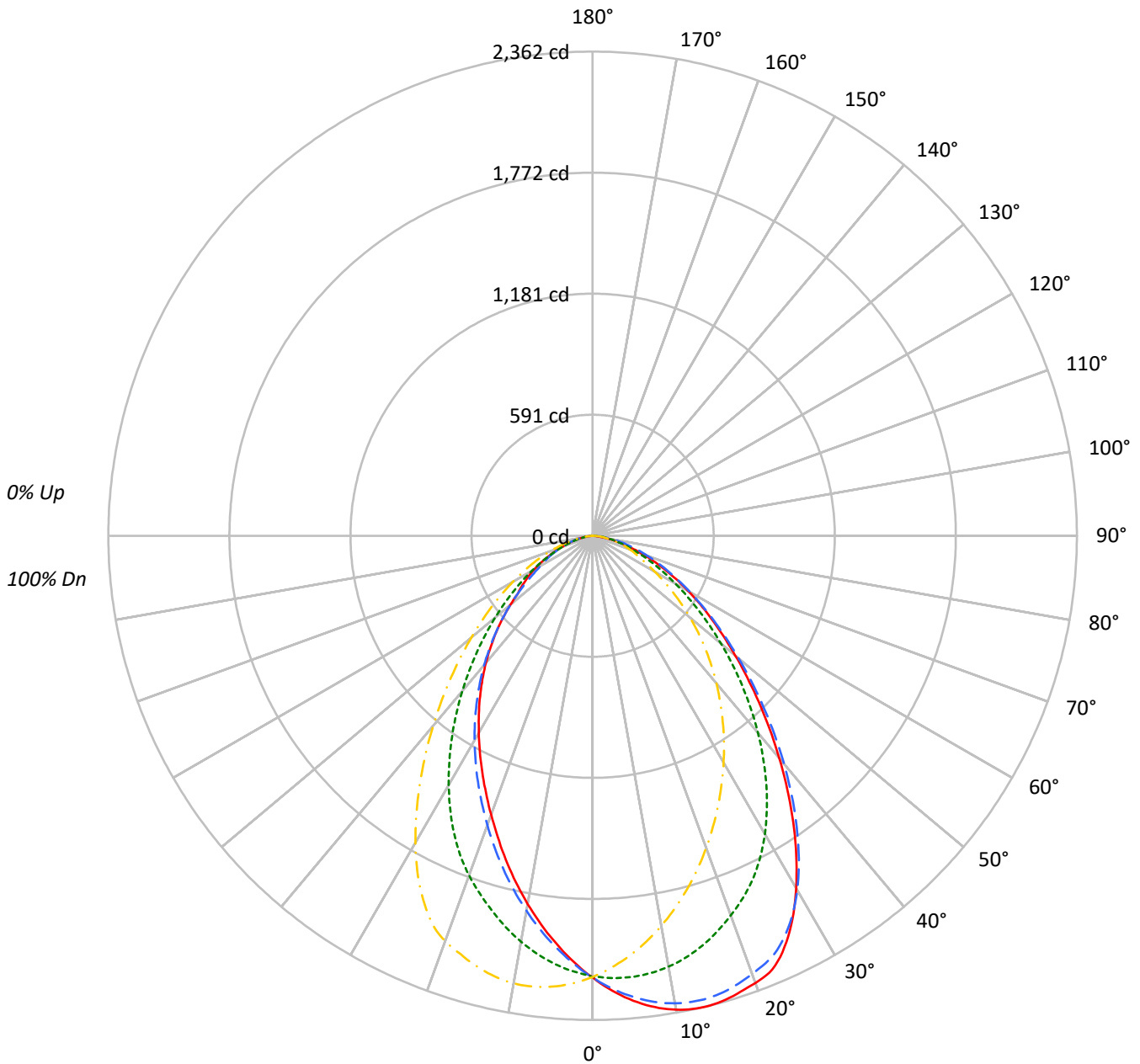
Lumens per Lamp: N/A
Luminaire Lumens: 4042.9 lumens
Efficiency: N/A
Efficacy: 105.0 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1.09 / 1.15
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	111	107	103	100	108	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°	271005	271005	271005	271005
5°	287667	272950	252762	264966
10°	300028	272758	233078	257001
15°	307405	269647	213088	246742
20°	310924	263916	193845	236126
25°	307477	256682	176810	222134
30°	288618	244194	161347	203984
35°	261946	226764	147013	183593
40°	232694	206047	132972	162495
45°	203839	183318	118302	141297
50°	177697	160017	102436	121271
55°	155432	137725	91495	103014
60°	135591	117267	82860	86157
65°	114945	99312	71260	70784
70°	94492	83233	58653	57034
75°	72694	69582	47555	44832
80°	46383	57907	33700	33121
85°	13718	50539	13140	15450

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 22.5°
 Vertical Angle: 45°
 Luminance: 210780 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	202.1	5.0
10°-20°	559.8	13.8
20°-30°	793.2	19.6
30°-40°	828.8	20.5
40°-50°	697.6	17.3
50°-60°	495.4	12.3
60°-70°	300.5	7.4
70°-80°	137.8	3.4
80°-90°	27.7	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°	1555.1	38.5
0°-40°	2383.9	59.0
0°-60°	3576.9	88.5
0°-90°	4042.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4042.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2153	2153	2153	2153	2153	
5°	2277	2161	2001	2097	2277	220
15°	2359	2070	1636	1894	2359	666
25°	2214	1848	1273	1600	2214	1011
35°	1705	1476	957	1195	1705	1063
45°	1145	1030	665	794	1145	885
55°	708	628	417	470	708	637
65°	386	334	239	238	386	385
75°	150	143	98	92	150	161
85°	10	35	9	11	10	18
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°	2153.4	2153.4	2153.4	2153.4	2153.4	2153.4	2153.4	2153.4	2153.4	2153.4	2153.4
0.5°	2170.1	2170.1	2167.7	2163.0	2151.5	2147.1	2144.3	2142.3	2142.3	2141.9	2143.5
1°	2184.0	2183.7	2178.9	2170.5	2153.8	2144.3	2136.3	2130.0	2127.6	2126.8	2130.8
1.5°	2197.2	2197.2	2190.4	2178.1	2156.2	2140.7	2127.2	2117.3	2112.9	2112.1	2117.7
2°	2209.9	2209.9	2201.5	2184.8	2158.2	2137.1	2118.1	2104.1	2097.4	2096.6	2104.1
2.5°	2222.2	2222.6	2211.9	2191.6	2159.8	2132.8	2108.9	2090.6	2081.9	2081.1	2090.2
3°	2233.7	2234.5	2222.2	2197.6	2160.6	2128.4	2099.4	2077.1	2066.4	2065.2	2076.7
3.5°	2245.3	2246.1	2231.8	2203.1	2161.4	2123.2	2089.0	2063.2	2050.5	2048.9	2062.8
4°	2256.4	2257.6	2240.9	2208.7	2161.4	2118.1	2078.7	2048.9	2033.8	2032.6	2048.1
4.5°	2266.7	2268.3	2249.6	2213.9	2161.4	2112.1	2068.0	2034.2	2017.1	2016.7	2033.4
5°	2277.1	2278.7	2258.0	2218.2	2160.6	2106.1	2056.8	2019.5	2000.8	1999.6	2018.7
5.5°	2286.2	2288.6	2265.9	2222.2	2160.2	2099.8	2045.7	2004.4	1983.7	1982.1	2003.6
6°	2295.4	2298.1	2273.5	2226.2	2158.6	2093.0	2033.8	1989.3	1966.6	1965.0	1988.1
6.5°	2303.7	2306.9	2280.3	2229.4	2157.0	2086.3	2022.3	1974.2	1949.5	1947.9	1972.6
7°	2311.7	2315.2	2287.0	2232.1	2155.0	2078.7	2010.3	1958.2	1931.6	1930.8	1957.1
7.5°	2319.2	2323.2	2293.0	2234.5	2152.2	2070.8	1997.6	1942.3	1914.1	1912.9	1940.8
8°	2326.0	2330.3	2298.5	2236.1	2149.5	2062.8	1984.9	1926.4	1896.2	1895.0	1924.5
8.5°	2331.9	2337.1	2303.7	2237.7	2146.3	2054.1	1971.8	1910.1	1878.3	1877.2	1908.2
9°	2337.9	2343.5	2308.5	2238.9	2142.7	2045.7	1959.0	1893.8	1860.1	1858.9	1891.9
9.5°	2343.1	2349.0	2312.5	2239.7	2138.7	2036.6	1945.1	1877.2	1841.8	1841.0	1875.2
10°	2347.8	2354.2	2316.0	2239.7	2134.4	2027.0	1931.6	1860.5	1823.9	1822.3	1858.1
10.5°	2351.8	2358.6	2318.8	2239.3	2129.6	2017.1	1917.3	1843.8	1805.2	1803.6	1841.0
11°	2355.0	2362.5	2321.6	2238.9	2124.4	2007.1	1904.2	1826.3	1786.5	1785.3	1823.9
11.5°	2357.8	2365.7	2323.2	2237.3	2118.9	1997.2	1889.1	1809.2	1768.2	1767.0	1806.8
12°	2359.8	2368.5	2324.8	2235.7	2112.9	1986.5	1874.4	1791.7	1749.1	1748.0	1789.3
12.5°	2361.3	2370.5	2325.6	2233.7	2106.5	1975.7	1859.3	1774.6	1730.5	1729.3	1771.4
13°	2362.1	2372.1	2326.0	2231.0	2099.8	1964.6	1845.0	1756.7	1711.8	1710.2	1754.3
13.5°	2362.5	2372.9	2325.6	2227.8	2092.6	1953.1	1829.8	1739.6	1692.7	1691.5	1736.4
14°	2361.7	2373.3	2324.8	2224.2	2085.5	1941.2	1814.3	1721.3	1673.6	1672.0	1718.5
14.5°	2361.0	2372.9	2323.2	2220.2	2077.1	1929.2	1798.8	1703.4	1654.9	1652.9	1700.6
15°	2359.4	2371.7	2321.2	2215.5	2069.6	1917.3	1782.9	1685.1	1635.5	1634.3	1682.4
15.5°	2357.0	2370.1	2318.8	2210.7	2060.8	1904.6	1767.4	1667.3	1616.4	1615.2	1664.5
16°	2354.6	2367.7	2315.6	2205.1	2051.7	1891.9	1751.5	1649.4	1597.3	1595.7	1646.6
16.5°	2351.0	2364.9	2312.1	2199.2	2042.5	1878.7	1735.2	1631.5	1578.6	1576.6	1628.7
17°	2347.4	2361.7	2307.7	2192.8	2033.0	1866.0	1719.3	1613.2	1559.1	1557.5	1610.4
17.5°	2343.1	2358.2	2303.3	2186.0	2022.6	1852.1	1702.6	1594.9	1540.0	1538.9	1592.5
18°	2338.7	2353.8	2298.1	2178.9	2012.7	1838.6	1686.3	1576.6	1521.4	1519.4	1574.2
18.5°	2333.5	2349.0	2292.6	2171.3	2002.4	1824.7	1669.6	1557.9	1502.7	1500.7	1555.9
19°	2329.1	2343.9	2286.6	2163.8	1992.0	1811.2	1653.7	1539.6	1484.0	1481.6	1538.1
19.5°	2325.6	2339.1	2280.6	2155.4	1981.3	1797.2	1636.2	1521.8	1466.1	1463.3	1519.8
20°	2321.6	2335.1	2274.3	2147.1	1970.6	1783.3	1619.6	1503.5	1447.4	1444.6	1501.9
20.5°	2317.2	2330.7	2268.3	2139.1	1959.4	1769.0	1602.9	1485.2	1429.9	1426.7	1483.6
21°	2312.1	2326.0	2262.8	2131.2	1948.3	1754.7	1586.2	1467.7	1411.6	1408.5	1465.7



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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°	2290.2	2307.3	2242.1	2104.9	1913.7	1711.4	1534.9	1414.8	1359.2	1355.2	1412.0
23°	2277.9	2298.1	2233.7	2095.4	1901.4	1696.7	1518.2	1397.7	1341.3	1337.7	1394.1
23.5°	2264.0	2287.4	2224.6	2085.1	1888.7	1681.6	1500.7	1380.2	1324.6	1321.0	1376.7
24°	2249.2	2274.3	2212.7	2073.5	1875.6	1666.5	1483.6	1363.1	1307.5	1303.1	1358.8
24.5°	2232.9	2259.2	2199.6	2061.6	1862.0	1650.6	1466.1	1346.4	1290.4	1285.6	1341.3
25°	2214.3	2244.1	2185.6	2048.1	1848.5	1634.7	1449.4	1329.0	1273.3	1268.9	1323.8
25.5°	2195.2	2228.2	2170.5	2033.8	1833.4	1618.8	1432.3	1312.7	1257.0	1252.2	1306.3
26°	2176.1	2210.3	2154.6	2018.7	1818.7	1602.5	1415.2	1295.6	1240.3	1235.5	1288.8
26.5°	2155.0	2190.4	2137.9	2002.4	1802.4	1585.8	1397.3	1279.3	1223.6	1218.4	1271.3
27°	2132.8	2171.3	2120.4	1985.3	1786.5	1569.5	1380.2	1262.2	1206.9	1202.1	1253.8
27.5°	2109.3	2150.7	2101.4	1967.8	1769.4	1552.4	1363.1	1245.9	1191.0	1185.8	1237.1
28°	2087.1	2128.4	2081.5	1949.1	1752.7	1535.3	1346.0	1229.2	1174.3	1169.5	1219.6
28.5°	2062.0	2105.7	2061.2	1930.4	1734.8	1518.2	1328.6	1213.3	1158.8	1153.2	1202.5
29°	2037.0	2082.7	2040.1	1910.5	1716.9	1500.3	1311.5	1197.0	1142.5	1136.9	1185.4
29.5°	2011.5	2058.4	2017.9	1890.7	1698.3	1483.2	1294.8	1180.7	1126.2	1121.0	1168.4
30°	1986.1	2033.8	1995.2	1870.0	1680.4	1464.9	1277.3	1164.8	1110.3	1105.1	1151.7
30.5°	1958.6	2008.3	1971.8	1848.5	1660.9	1446.6	1260.2	1148.9	1094.8	1089.2	1134.6
31°	1931.6	1982.1	1947.5	1827.1	1641.4	1428.7	1243.1	1132.6	1078.9	1073.3	1117.5
31.5°	1904.2	1955.1	1922.9	1804.4	1621.5	1410.1	1226.0	1116.3	1063.8	1057.0	1100.4
32°	1876.4	1928.4	1897.8	1781.7	1602.1	1391.8	1208.9	1100.4	1047.9	1041.5	1084.1
32.5°	1848.1	1901.0	1871.6	1759.1	1581.4	1373.5	1192.2	1084.9	1032.8	1026.0	1067.0
33°	1820.3	1873.2	1845.7	1736.0	1560.7	1354.4	1174.7	1069.0	1017.3	1010.5	1050.3
33.5°	1792.1	1844.6	1819.1	1711.8	1540.0	1335.7	1158.0	1053.5	1002.2	995.0	1033.2
34°	1763.5	1816.7	1792.1	1687.5	1519.0	1316.6	1140.5	1038.0	987.1	979.5	1016.9
34.5°	1733.6	1786.9	1763.5	1663.3	1497.5	1297.5	1123.8	1022.1	972.0	964.0	1000.2
35°	1705.0	1758.3	1736.0	1638.2	1476.0	1278.5	1106.7	1006.6	956.9	948.9	983.5
35.5°	1676.4	1728.9	1708.2	1613.2	1454.6	1259.8	1090.0	991.1	942.6	933.8	967.2
36°	1647.8	1700.6	1680.0	1587.7	1432.7	1240.7	1072.9	975.9	927.0	918.3	951.3
36.5°	1618.4	1671.2	1651.4	1562.3	1410.8	1220.8	1056.2	960.4	912.7	903.2	934.6
37°	1588.5	1641.0	1623.5	1536.5	1388.6	1201.7	1039.2	944.9	897.2	888.1	918.3
37.5°	1560.3	1611.6	1594.9	1510.6	1366.3	1183.1	1022.5	929.8	882.9	873.0	902.4
38°	1531.3	1582.2	1566.3	1484.4	1344.1	1163.2	1005.4	914.7	867.8	858.3	886.1
38.5°	1502.3	1552.4	1536.9	1458.2	1321.8	1144.1	989.5	899.6	853.1	843.2	869.8
39°	1472.9	1523.7	1509.0	1431.9	1299.5	1124.6	972.4	884.1	838.8	828.5	854.3
39.5°	1445.0	1494.3	1480.0	1405.7	1276.9	1105.5	956.1	869.0	824.5	813.4	838.0
40°	1416.4	1464.5	1451.8	1379.4	1254.2	1085.7	939.4	853.9	809.4	798.6	822.5
40.5°	1387.4	1435.1	1422.8	1353.2	1231.6	1066.6	922.7	838.4	794.7	783.5	806.2
41°	1359.2	1406.9	1395.3	1326.6	1208.9	1047.1	906.4	823.7	780.4	768.4	791.1
41.5°	1331.7	1378.2	1366.7	1300.7	1187.0	1028.0	890.1	808.6	766.0	753.7	775.2
42°	1304.3	1349.2	1339.3	1274.9	1164.0	1008.5	873.4	793.5	751.3	739.4	759.7
42.5°	1276.5	1320.6	1311.5	1248.7	1141.7	989.9	857.1	778.8	736.6	724.7	744.6
43°	1249.8	1293.6	1283.6	1223.6	1119.5	970.8	841.2	764.1	722.3	710.0	729.1
43.5°	1223.6	1265.7	1256.2	1197.4	1096.8	951.7	824.5	749.0	708.0	695.3	713.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	1145.3	1184.3	1176.3	1122.2	1030.0	894.8	776.8	704.4	664.7	652.0	668.3
45.5°	1120.2	1158.0	1150.1	1096.8	1008.1	876.2	760.5	689.3	650.8	637.6	653.1
46°	1094.8	1131.8	1124.2	1072.5	986.3	857.5	744.6	675.0	636.5	623.3	638.0
46.5°	1069.4	1106.3	1099.2	1048.3	964.8	839.2	728.7	660.3	622.1	608.6	623.3
47°	1045.9	1081.3	1073.3	1024.4	942.6	820.5	712.8	645.6	607.8	594.7	609.4
47.5°	1022.1	1055.8	1048.3	1000.2	921.1	802.2	697.3	631.3	593.1	580.4	593.9
48°	997.8	1030.8	1024.0	976.7	900.0	784.3	681.4	617.0	579.6	566.5	579.6
48.5°	974.8	1007.7	1000.2	954.1	879.3	766.4	666.3	602.3	565.3	552.2	565.3
49°	952.9	983.9	976.7	931.4	858.3	748.2	650.8	588.3	551.0	538.7	551.8
49.5°	930.2	960.0	953.3	908.8	837.6	731.1	635.3	574.0	537.1	524.7	537.1
50°	907.6	937.0	929.8	886.9	817.3	713.2	620.2	559.7	523.2	511.2	523.6
50.5°	886.9	915.1	907.2	864.2	797.1	695.7	605.0	545.4	508.8	497.7	509.6
51°	865.4	893.3	884.5	843.2	777.6	678.6	589.9	531.5	495.3	483.8	496.1
51.5°	844.0	870.6	863.0	821.7	758.1	661.5	575.2	517.6	482.2	471.1	482.6
52°	824.1	849.9	842.0	801.0	738.2	644.8	560.5	504.1	468.3	458.4	469.5
52.5°	804.6	829.7	820.5	780.8	719.1	627.7	545.8	490.2	456.0	445.2	456.0
53°	783.9	808.2	799.8	760.1	700.5	611.4	531.5	476.6	449.2	432.5	443.2
53.5°	764.1	788.3	779.6	740.2	681.8	595.1	516.8	463.5	442.1	420.6	430.5
54°	746.2	768.8	759.3	720.7	663.1	578.8	502.9	450.4	434.1	413.4	418.2
54.5°	727.5	749.7	739.8	701.6	645.2	562.9	489.0	437.7	425.4	405.9	405.9
55°	708.4	730.7	720.7	682.6	627.7	547.4	475.4	425.4	417.0	397.9	394.0
55.5°	691.7	712.0	702.0	664.3	610.2	531.9	461.9	412.6	407.9	389.6	382.4
56°	673.8	693.7	683.4	645.6	592.7	516.8	448.4	403.5	399.1	381.2	370.9
56.5°	655.9	675.8	665.5	628.1	575.6	501.7	434.9	396.3	390.4	372.5	359.8
57°	638.8	657.9	647.6	610.6	559.3	487.0	422.2	388.4	381.2	364.1	349.0
57.5°	622.1	641.2	630.1	593.5	543.0	472.3	409.5	380.4	372.5	355.8	339.5
58°	604.3	624.1	613.0	576.4	527.1	458.4	397.1	372.1	364.1	347.4	330.0
58.5°	588.0	607.0	596.3	560.1	511.2	444.4	385.2	363.7	355.4	339.1	320.4
59°	570.9	590.7	579.6	543.8	495.7	430.5	373.3	355.0	346.6	331.1	310.9
59.5°	554.2	574.0	563.7	527.9	480.6	417.0	361.4	346.6	337.9	323.2	301.3
60°	538.7	557.7	547.8	512.0	465.9	403.9	349.8	338.7	329.2	314.8	294.2
60.5°	521.2	541.8	532.3	496.9	451.2	391.2	339.5	330.4	320.4	306.9	287.0
61°	506.1	524.7	516.4	481.8	437.3	378.5	329.2	322.0	311.7	298.5	279.9
61.5°	490.2	510.0	502.1	467.5	423.0	365.7	318.8	314.1	302.9	290.6	272.7
62°	475.1	494.5	487.4	452.8	409.5	354.2	308.5	305.7	293.8	282.6	265.6
62.5°	459.5	479.0	472.7	438.9	395.9	342.7	298.2	297.0	284.6	274.3	258.4
63°	444.0	464.3	458.4	424.6	382.8	331.5	288.2	288.6	275.5	265.9	251.2
63.5°	429.3	449.2	444.4	411.0	369.7	320.0	279.5	279.9	266.3	258.0	244.1
64°	414.2	434.9	430.9	397.5	357.0	308.9	271.1	271.5	257.2	249.7	237.7
64.5°	400.3	420.2	417.4	384.8	345.5	297.4	264.0	263.2	248.1	241.3	231.0
65°	386.0	406.7	404.3	372.1	333.5	287.4	257.2	255.2	239.3	233.4	224.2
65.5°	372.5	392.4	391.2	359.8	321.6	277.1	250.4	246.5	230.6	225.0	217.5
66°	358.2	379.2	378.5	347.4	310.1	266.3	243.3	238.5	221.8	217.1	211.1



TEST NUMBER: P776297

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	318.8	339.5	341.1	312.1	276.7	238.5	223.0	214.3	196.4	193.6	191.6
68°	305.7	326.8	329.2	300.9	265.6	229.4	216.3	206.3	188.4	185.6	185.3
68.5°	293.0	314.4	317.6	289.4	255.6	220.6	209.9	198.8	180.9	178.5	178.9
69°	281.1	302.1	306.1	278.7	245.7	212.3	203.1	190.8	173.3	170.9	172.5
69.5°	268.7	289.8	294.2	267.9	235.7	203.9	196.4	183.3	166.6	164.2	166.2
70°	256.8	278.3	283.4	258.0	226.2	196.0	190.0	175.7	159.4	157.4	159.8
70.5°	244.9	266.7	272.7	247.3	216.7	188.4	183.7	169.0	152.7	150.7	153.4
71°	233.4	255.2	262.0	237.7	207.9	180.9	177.3	161.8	146.3	144.3	147.5
71.5°	222.2	244.1	250.8	227.8	198.8	173.7	170.9	155.0	139.9	137.9	141.1
72°	211.5	233.0	240.9	218.2	190.4	166.6	164.6	148.7	133.6	131.6	135.2
72.5°	200.4	222.6	230.6	209.1	181.7	159.8	158.2	142.3	127.2	125.6	129.2
73°	189.6	212.3	220.6	199.6	173.7	153.4	152.3	136.0	121.2	119.7	123.2
73.5°	179.3	201.5	210.7	190.8	165.4	146.7	145.9	130.0	115.3	113.7	117.3
74°	169.0	192.0	201.2	182.5	157.8	140.3	139.9	124.0	109.3	107.7	111.7
74.5°	159.0	182.1	192.0	173.7	150.3	134.4	134.4	118.1	103.8	102.2	106.5
75°	149.5	172.5	182.5	165.4	143.1	128.4	128.0	112.5	97.8	96.2	101.0
75.5°	140.3	163.0	173.3	157.4	136.0	122.4	122.4	106.9	92.2	90.6	95.8
76°	131.2	154.2	164.6	149.5	129.2	116.9	116.5	101.0	87.1	85.1	90.6
76.5°	122.4	145.1	155.8	141.9	122.4	111.3	111.3	95.4	81.5	79.9	85.5
77°	113.3	136.8	147.5	134.8	116.1	106.1	105.7	90.2	76.3	74.3	80.3
77.5°	104.6	128.8	139.5	127.2	109.3	101.0	100.6	85.1	71.2	69.2	75.5
78°	96.2	120.5	132.0	120.1	103.4	95.8	95.0	79.5	66.0	64.0	70.4
78.5°	87.5	112.1	124.0	112.9	97.0	91.0	90.2	74.3	60.8	58.8	65.6
79°	79.5	104.2	116.1	106.1	91.4	86.7	85.1	69.2	56.1	54.1	60.8
79.5°	71.6	96.6	108.5	99.4	85.5	81.9	79.9	64.4	51.3	49.3	56.1
80°	64.0	89.0	101.0	93.0	79.9	77.5	75.1	59.2	46.5	44.5	51.7
80.5°	56.4	81.5	94.2	86.7	74.7	73.1	70.4	54.5	41.7	40.2	47.3
81°	49.3	74.7	87.5	80.7	69.6	68.8	65.6	49.7	37.4	36.2	43.3
81.5°	42.1	68.0	80.3	74.7	64.8	64.4	61.2	45.3	33.0	32.2	39.0
82°	35.0	61.6	73.9	69.2	60.0	60.0	56.4	40.5	28.6	28.2	35.4
82.5°	28.6	55.3	68.0	63.6	55.3	55.7	52.1	37.0	24.2	24.2	31.8
83°	22.3	49.3	62.0	58.4	50.9	51.7	47.7	33.0	19.9	20.3	28.2
83.5°	16.3	43.7	56.4	53.3	46.5	47.7	43.7	29.0	15.9	17.5	24.6
84°	14.3	38.6	50.9	48.1	42.5	43.3	39.8	25.4	12.7	15.1	21.1
84.5°	11.9	34.2	45.7	43.3	38.6	39.8	36.2	21.5	10.3	13.1	17.9
85°	9.5	30.2	40.5	38.6	35.0	35.8	32.2	19.1	9.1	11.1	14.7
85.5°	7.2	26.2	35.8	34.2	31.0	32.2	28.6	16.7	7.6	9.1	11.5
86°	5.2	22.7	31.0	29.8	27.4	28.2	25.0	14.3	6.4	7.2	8.7
86.5°	4.0	19.1	26.2	25.4	23.5	24.2	21.1	11.9	5.2	5.6	5.6
87°	2.8	15.5	21.9	21.5	19.9	20.7	17.9	9.9	4.0	3.6	2.8
87.5°	2.0	11.9	17.5	17.5	16.7	17.1	14.3	7.6	2.4	2.0	0.8
88°	0.8	8.7	13.5	13.9	13.5	13.9	11.1	5.6	1.2	0.8	0.4
88.5°	0.4	5.6	10.3	10.7	10.3	10.3	8.0	3.2	0.4	0.4	0.0



TEST NUMBER: P776297

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3500K

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: P776297

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2153.4	2153.4	2153.4	2153.4	2153.4	2153.4
0.5°	2146.3	2144.7	2151.8	2159.4	2165.8	2170.1
1°	2137.5	2141.1	2153.8	2166.6	2176.9	2184.0
1.5°	2128.4	2137.1	2155.0	2172.9	2187.6	2197.2
2°	2118.9	2132.0	2155.8	2179.3	2198.4	2209.9
2.5°	2108.9	2127.6	2156.6	2185.2	2207.9	2222.2
3°	2099.0	2122.4	2156.6	2190.4	2217.4	2233.7
3.5°	2088.2	2116.9	2156.6	2195.6	2226.6	2245.3
4°	2077.5	2110.9	2155.8	2199.9	2234.9	2256.4
4.5°	2066.8	2104.1	2154.6	2203.9	2243.3	2266.7
5°	2054.9	2097.4	2153.4	2207.5	2250.8	2277.1
5.5°	2043.3	2090.6	2151.5	2210.7	2258.4	2286.2
6°	2031.4	2083.1	2149.5	2213.1	2264.7	2295.4
6.5°	2019.5	2075.1	2146.3	2215.5	2271.1	2303.7
7°	2006.7	2067.2	2143.5	2217.0	2276.3	2311.7
7.5°	1994.0	2058.4	2139.9	2218.2	2281.4	2319.2
8°	1980.9	2049.7	2135.5	2219.0	2285.8	2326.0
8.5°	1967.4	2040.1	2131.2	2219.0	2289.8	2331.9
9°	1953.9	2031.0	2126.4	2219.0	2293.4	2337.9
9.5°	1940.4	2021.1	2121.2	2218.2	2296.2	2343.1
10°	1926.4	2011.1	2115.7	2216.6	2298.5	2347.8
10.5°	1912.1	2000.4	2109.7	2215.1	2300.5	2351.8
11°	1897.4	1990.1	2103.0	2212.7	2301.7	2355.0
11.5°	1882.7	1978.5	2095.8	2209.9	2302.1	2357.8
12°	1868.0	1967.4	2088.6	2206.3	2302.1	2359.8
12.5°	1852.9	1955.5	2080.7	2202.3	2301.3	2361.3
13°	1838.2	1943.5	2072.7	2198.0	2300.1	2362.1
13.5°	1823.1	1931.2	2064.4	2193.2	2298.1	2362.5
14°	1807.2	1919.3	2055.6	2188.0	2295.8	2361.7
14.5°	1791.3	1906.6	2046.5	2182.5	2293.0	2361.0
15°	1775.8	1893.8	2037.4	2176.1	2289.4	2359.4
15.5°	1760.3	1881.1	2027.8	2169.3	2285.4	2357.0
16°	1744.4	1868.8	2018.3	2162.6	2281.0	2354.6
16.5°	1728.5	1855.7	2008.3	2155.8	2276.3	2351.0
17°	1713.4	1843.0	1998.8	2148.3	2271.1	2347.4
17.5°	1697.1	1830.2	1989.3	2140.7	2265.5	2343.1
18°	1680.8	1817.1	1979.7	2134.4	2259.6	2338.7
18.5°	1664.5	1804.0	1969.4	2127.6	2254.8	2333.5
19°	1648.6	1790.5	1959.8	2120.4	2250.4	2329.1
19.5°	1632.7	1777.4	1948.7	2112.5	2245.7	2325.6
20°	1616.8	1763.1	1937.2	2104.1	2239.7	2321.6
20.5°	1600.5	1748.7	1925.7	2095.4	2233.3	2317.2
21°	1583.8	1733.6	1912.9	2085.5	2226.2	2312.1

TEST NUMBER: P776297

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1533.3	1687.1	1869.2	2046.1	2194.8	2290.2
23°	1515.8	1670.8	1852.9	2029.8	2180.5	2277.9
23.5°	1498.7	1653.7	1835.4	2013.1	2165.0	2264.0
24°	1481.2	1635.8	1817.5	1995.2	2148.3	2249.2
24.5°	1464.1	1618.0	1798.0	1975.7	2130.8	2232.9
25°	1446.2	1599.7	1779.4	1956.3	2111.7	2214.3
25.5°	1428.3	1581.0	1759.9	1936.8	2091.0	2195.2
26°	1410.1	1561.9	1739.6	1916.1	2070.4	2176.1
26.5°	1391.8	1543.2	1718.9	1894.2	2048.9	2155.0
27°	1373.9	1524.1	1698.3	1872.8	2025.8	2132.8
27.5°	1355.2	1504.3	1677.2	1849.7	2001.6	2109.3
28°	1336.5	1484.0	1655.7	1825.9	1977.3	2087.1
28.5°	1317.8	1464.9	1633.9	1802.4	1953.1	2062.0
29°	1299.1	1444.2	1611.6	1778.6	1928.0	2037.0
29.5°	1280.5	1424.4	1589.7	1753.1	1901.8	2011.5
30°	1261.4	1403.7	1567.5	1728.5	1876.4	1986.1
30.5°	1242.3	1383.4	1544.0	1702.6	1848.9	1958.6
31°	1223.2	1362.7	1521.4	1677.2	1822.3	1931.6
31.5°	1204.5	1342.1	1497.9	1651.8	1794.9	1904.2
32°	1185.8	1320.6	1474.1	1624.7	1767.4	1876.4
32.5°	1166.4	1300.3	1451.0	1598.9	1739.2	1848.1
33°	1147.7	1278.9	1427.1	1572.6	1712.2	1820.3
33.5°	1129.0	1258.6	1403.7	1546.4	1684.3	1792.1
34°	1110.7	1237.1	1379.0	1520.2	1656.5	1763.5
34.5°	1091.6	1216.5	1355.2	1493.1	1628.3	1733.6
35°	1072.5	1195.0	1330.9	1466.9	1600.5	1705.0
35.5°	1053.9	1174.7	1307.5	1440.7	1572.2	1676.4
36°	1035.6	1154.4	1283.2	1414.4	1545.2	1647.8
36.5°	1016.9	1133.0	1259.4	1388.6	1517.0	1618.4
37°	998.6	1111.9	1235.9	1362.3	1489.6	1588.5
37.5°	979.9	1091.6	1211.7	1336.5	1460.9	1560.3
38°	962.0	1071.0	1188.2	1310.7	1433.5	1531.3
38.5°	943.7	1050.3	1164.8	1285.6	1406.5	1502.3
39°	926.3	1029.6	1141.3	1260.2	1378.6	1472.9
39.5°	908.0	1009.3	1118.7	1235.1	1352.4	1445.0
40°	889.7	989.1	1094.8	1209.7	1325.0	1416.4
40.5°	872.2	968.8	1072.9	1185.4	1298.7	1387.4
41°	854.7	948.5	1050.3	1160.4	1270.9	1359.2
41.5°	837.2	928.2	1028.0	1136.9	1245.9	1331.7
42°	819.7	908.8	1005.8	1113.1	1220.4	1304.3
42.5°	802.6	889.3	984.3	1089.6	1194.6	1276.5
43°	785.1	869.8	962.8	1065.8	1168.4	1249.8
43.5°	768.4	850.7	941.4	1043.1	1144.1	1223.6

TEST NUMBER: P776297

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	717.9	793.9	879.3	975.9	1070.2	1145.3
45.5°	701.2	775.6	859.5	954.1	1047.5	1120.2
46°	685.3	757.3	839.6	932.2	1024.4	1094.8
46.5°	669.0	739.0	819.7	911.5	1001.4	1069.4
47°	652.4	721.5	800.6	890.5	977.5	1045.9
47.5°	636.8	703.6	781.6	869.8	955.7	1022.1
48°	621.3	686.1	762.9	849.1	934.2	997.8
48.5°	605.8	669.0	744.2	829.7	912.7	974.8
49°	590.7	652.4	725.9	810.2	890.9	952.9
49.5°	575.2	636.1	708.0	791.1	870.6	930.2
50°	560.1	619.4	690.5	771.2	849.5	907.6
50.5°	545.4	603.5	672.6	752.9	829.3	886.9
51°	530.7	587.6	655.9	734.2	809.0	865.4
51.5°	516.8	572.1	638.8	716.4	790.3	844.0
52°	502.5	556.9	622.5	698.9	770.8	824.1
52.5°	488.6	541.8	605.8	680.6	751.7	804.6
53°	474.7	526.7	590.3	663.5	733.4	783.9
53.5°	461.5	512.0	574.0	646.4	715.2	764.1
54°	448.4	497.7	558.5	629.7	696.9	746.2
54.5°	434.9	483.0	542.6	613.4	679.8	727.5
55°	422.2	469.5	528.3	597.1	662.3	708.4
55.5°	409.9	455.6	513.6	581.2	645.2	691.7
56°	397.5	442.1	498.9	565.7	628.1	673.8
56.5°	385.2	428.9	484.6	550.2	612.2	655.9
57°	373.3	415.8	470.7	535.1	595.9	638.8
57.5°	362.2	402.7	456.4	520.0	580.0	622.1
58°	350.6	390.8	442.9	505.7	564.9	604.3
58.5°	339.9	378.1	429.3	491.4	549.4	588.0
59°	329.6	366.1	416.2	477.4	534.3	570.9
59.5°	318.8	354.2	403.5	463.1	519.2	554.2
60°	308.1	342.3	390.8	449.2	504.1	538.7
60.5°	297.4	330.7	378.1	436.1	489.4	521.2
61°	287.4	319.6	366.1	423.0	474.7	506.1
61.5°	277.5	308.5	353.8	409.9	459.9	490.2
62°	268.3	297.8	342.3	397.1	445.6	475.1
62.5°	259.2	287.4	330.4	384.4	430.9	459.5
63°	249.7	277.1	319.2	372.1	417.0	444.0
63.5°	240.9	266.7	307.7	360.2	403.1	429.3
64°	232.6	256.8	297.0	348.2	389.6	414.2
64.5°	224.2	247.3	286.2	336.3	376.5	400.3
65°	216.3	237.7	275.9	325.2	362.9	386.0
65.5°	208.3	228.2	265.2	313.3	350.2	372.5
66°	200.4	219.4	255.2	302.1	337.1	358.2



TEST NUMBER: P776297

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3500K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	178.9	193.6	225.8	269.9	300.5	318.8
68°	172.1	185.6	216.7	259.6	288.6	305.7
68.5°	165.8	177.3	207.5	248.9	277.1	293.0
69°	159.4	169.7	198.8	238.9	265.6	281.1
69.5°	153.1	162.2	190.0	229.0	254.4	268.7
70°	147.5	155.0	181.7	219.4	242.9	256.8
70.5°	141.9	147.9	173.3	209.5	232.2	244.9
71°	136.8	143.1	165.4	200.4	221.4	233.4
71.5°	131.2	136.4	157.4	191.2	211.1	222.2
72°	126.0	129.6	149.9	182.1	201.2	211.5
72.5°	120.9	122.4	141.5	173.3	191.2	200.4
73°	116.1	115.7	134.8	164.6	181.3	189.6
73.5°	110.9	109.7	128.0	156.2	171.7	179.3
74°	106.1	103.8	121.2	147.9	162.6	169.0
74.5°	101.4	98.2	114.5	140.3	153.4	159.0
75°	96.2	92.2	108.1	132.4	145.1	149.5
75.5°	91.8	87.1	101.8	124.8	136.8	140.3
76°	87.1	81.9	95.4	116.9	128.8	131.2
76.5°	82.3	76.7	89.0	109.3	120.5	122.4
77°	77.5	72.0	83.5	102.2	112.5	113.3
77.5°	73.1	67.2	77.5	95.4	104.2	104.6
78°	68.8	62.8	72.4	88.6	97.0	96.2
78.5°	64.4	58.4	66.8	81.9	89.4	87.5
79°	60.0	54.1	61.6	75.9	82.3	79.5
79.5°	55.7	49.7	56.8	69.6	75.5	71.6
80°	51.3	45.7	51.7	63.6	68.8	64.0
80.5°	47.3	41.7	47.3	58.0	62.8	56.4
81°	43.3	37.8	42.9	52.5	56.8	49.3
81.5°	39.4	34.2	38.2	47.3	50.9	42.1
82°	35.4	30.6	34.2	42.1	45.3	35.0
82.5°	31.8	27.0	30.2	37.4	40.5	28.6
83°	27.8	23.5	26.2	33.0	35.4	22.3
83.5°	24.2	19.9	22.3	28.6	31.0	16.3
84°	20.3	16.7	18.7	24.2	27.0	14.3
84.5°	16.7	13.5	15.1	20.3	23.5	11.9
85°	13.1	10.7	11.9	16.3	19.9	9.5
85.5°	9.9	8.0	8.7	13.1	16.3	7.2
86°	6.8	5.2	6.0	9.9	13.1	5.2
86.5°	3.6	2.0	2.8	6.8	10.3	4.0
87°	1.2	0.4	0.8	3.6	7.2	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: P776297

CATALOG NUMBER: HCDJBL3040CSD-HCD4TRH-HCD4TRLWW-4000lm-3500K

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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21.5°	2306.1	2320.4	2256.4	2122.8	1937.2	1740.4	1569.1	1449.8	1394.1	1390.6	1447.4
22°	2299.3	2314.4	2249.6	2114.1	1925.3	1725.7	1551.6	1432.3	1376.7	1372.7	1429.5



44°	1196.6	1237.9	1230.0	1171.9	1074.1	932.2	808.6	733.8	693.3	681.0	698.1
44.5°	1170.3	1210.1	1202.9	1146.9	1051.9	913.5	792.7	719.1	679.0	666.3	683.4



66.5°	345.1	365.7	365.7	335.5	298.2	256.8	236.5	230.6	213.1	209.1	204.3
67°	331.5	352.2	353.4	323.2	287.4	247.7	229.8	222.2	204.7	201.2	198.0



89°	0.0	2.4	7.2	7.6	7.2	7.2	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°	1567.1	1718.5	1899.8	2073.9	2217.8	2306.1
22°	1550.4	1703.4	1885.1	2061.2	2207.1	2299.3



44°	751.3	830.8	920.3	1020.1	1119.9	1196.6
44.5°	734.6	812.2	899.6	998.2	1095.6	1170.3

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66.5°	193.2	210.7	245.3	291.4	324.8	345.1
67°	186.0	201.9	235.3	280.3	312.5	331.5

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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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Scaled Data Report



(END OF REPORT)