

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: P776279

Luminaire Tested: HCDJBL3040CSD-HCD42TRMB-4000lm-5000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776279
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2312156B051)
Test Lab:
Issue Date: 2/13/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCDJBL3040CSD-HCD42TRMB-4000lm-5000K
Description: 4 INCH ROUND NARROW MATTE BLACK TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT
Ballast/Driver: -

Summary

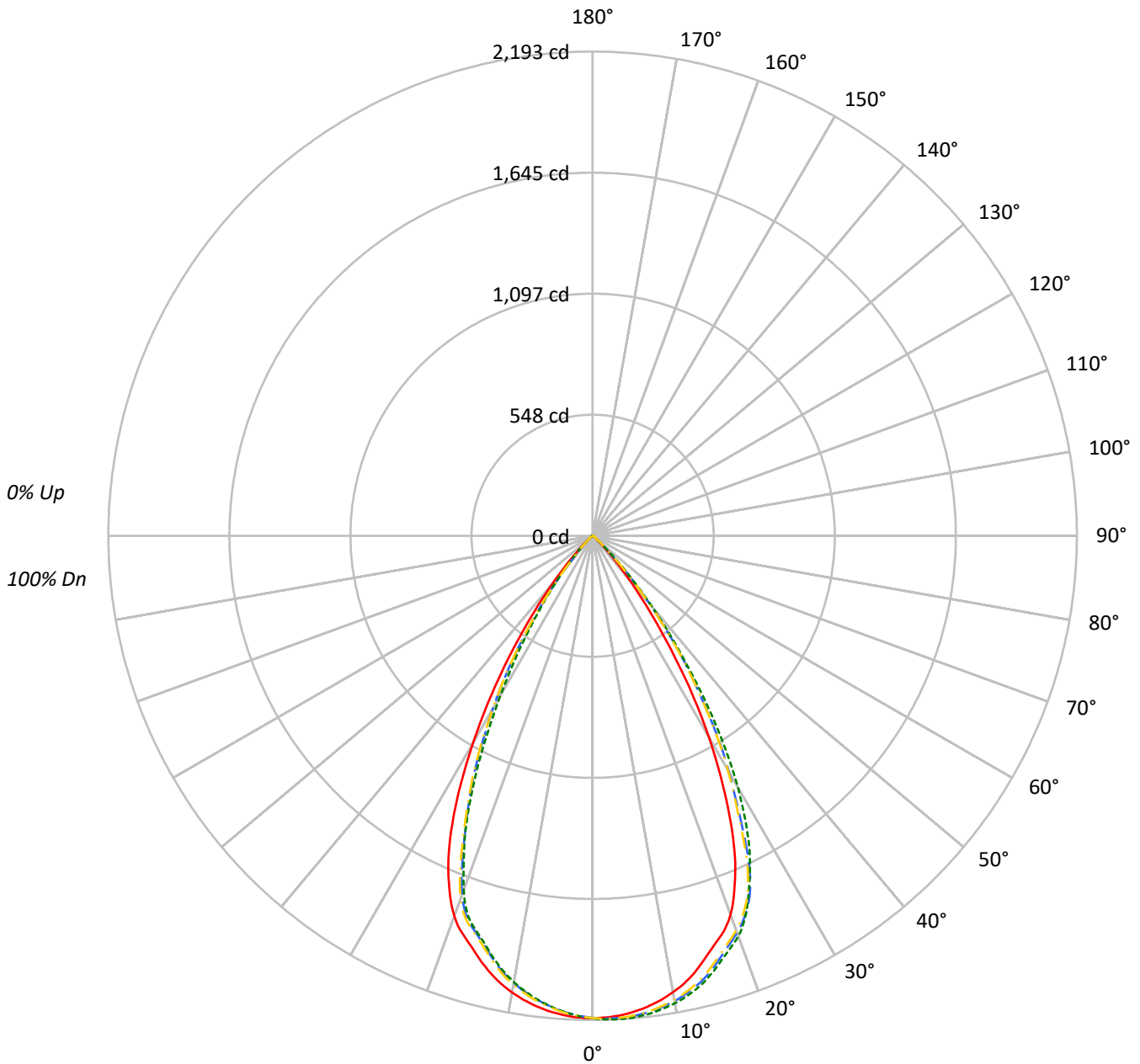
Lumens per Lamp: N/A
Luminaire Lumens: 1928.9 lumens
Efficiency: N/A
Efficacy: 50.1 lumens/watt
Spacing Criteria (0/90/45): 0.95 / 0.94 / 0.88
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									50									30									10									0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	114	111	109	106	111	109	107	105	105	103	101	101	100	98	98	97	96	94																			
2	108	103	100	96	106	102	98	95	99	96	93	96	93	91	93	91	89	88																			
3	103	97	92	88	101	95	91	87	93	89	86	90	87	85	88	85	83	82																			
4	98	91	85	81	96	89	84	81	87	83	80	85	82	79	83	80	78	76																			
5	93	85	79	75	91	84	79	75	82	78	74	81	77	73	79	76	73	71																			
6	89	80	74	70	87	79	74	70	78	73	69	76	72	69	75	71	68	67																			
7	84	75	69	65	83	74	69	65	73	68	65	72	68	64	71	67	64	63																			
8	80	71	65	61	79	70	65	61	69	64	61	68	64	60	67	63	60	59																			
9	76	67	61	57	75	67	61	57	66	61	57	65	60	57	64	60	57	55																			
10	73	63	58	54	72	63	58	54	62	57	54	61	57	54	61	56	53	52																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	274894	274894	274894	274894
5°	273316	276512	273417	270575
10°	268221	274700	268387	262330
15°	257660	268357	258351	248240
20°	244550	258451	245474	228465
25°	208679	233923	212817	181046
30°	153006	191254	157162	121065
35°	90398	127870	96790	68982
40°	41482	68195	46246	31346
45°	12797	23191	14612	9166
50°	4072	4640	4151	3524
55°	2501	2874	2501	2150
60°	1535	1737	1636	1435
65°	1102	1102	1102	983
70°	736	736	736	589
75°	389	583	389	389
80°	290	290	290	290
85°	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 24223 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	204.5	10.6
10°-20°	556.1	28.8
20°-30°	674.9	35.0
30°-40°	397.7	20.6
40°-50°	80.0	4.1
50°-60°	10.9	0.6
60°-70°	3.7	0.2
70°-80°	1.1	0.1
80°-90°	0.1	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°	1435.5	74.4
0°-40°	1833.2	95.0
0°-60°	1924.0	99.7
0°-90°	1928.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1928.9	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2184	2184	2184	2184	2184	
5°	2164	2189	2164	2142	2164	204
15°	1978	2060	1983	1905	1978	556
25°	1503	1685	1533	1304	1503	673
35°	588	832	630	449	588	374
45°	72	130	82	52	72	70
55°	11	13	11	10	11	11
65°	4	4	4	3	4	4
75°	1	1	1	1	1	1
85°	0	0	0	0	0	0
90°	0	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°	2184.3	2184.3	2184.3	2184.3	2184.3	2184.3	2184.3	2184.3	2184.3	2184.3	2184.3
0.5°	2184.7	2186.0	2184.7	2183.9	2188.4	2186.8	2185.6	2185.1	2184.7	2184.3	2181.1
1°	2183.9	2186.0	2186.0	2185.6	2190.0	2188.4	2186.8	2185.6	2184.3	2182.7	2178.2
1.5°	2183.1	2186.0	2187.2	2187.2	2191.3	2189.6	2187.2	2185.1	2183.1	2180.6	2175.3
2°	2181.5	2185.1	2187.6	2188.0	2192.1	2190.5	2187.6	2184.7	2181.9	2178.6	2171.7
2.5°	2179.4	2184.3	2187.6	2188.4	2192.9	2190.9	2187.2	2183.9	2179.8	2175.7	2167.6
3°	2177.0	2182.7	2187.2	2188.8	2192.9	2190.9	2186.8	2182.3	2177.8	2172.5	2163.5
3.5°	2174.5	2181.1	2186.8	2188.4	2192.5	2190.0	2185.6	2180.6	2174.9	2168.8	2159.0
4°	2171.3	2178.6	2185.6	2187.6	2191.7	2189.2	2184.3	2178.2	2171.7	2164.7	2153.7
4.5°	2167.6	2176.2	2184.3	2186.8	2190.5	2188.0	2182.3	2175.7	2168.4	2160.6	2148.0
5°	2163.5	2172.9	2182.3	2185.1	2188.8	2186.0	2180.2	2172.9	2164.3	2155.7	2141.8
5.5°	2159.0	2169.6	2179.8	2183.5	2186.8	2183.9	2177.4	2169.6	2159.8	2150.4	2135.7
6°	2154.1	2165.5	2177.0	2181.1	2184.3	2181.1	2174.1	2165.5	2154.9	2144.7	2128.8
6.5°	2148.8	2161.4	2173.7	2178.2	2181.9	2178.2	2170.4	2161.0	2149.6	2138.2	2121.4
7°	2143.5	2156.5	2170.0	2174.9	2178.2	2174.5	2166.8	2156.1	2144.3	2131.6	2113.2
7.5°	2136.9	2151.2	2165.9	2171.7	2174.5	2170.4	2162.7	2151.2	2138.2	2124.3	2105.1
8°	2130.4	2145.5	2161.9	2167.6	2170.4	2166.3	2157.4	2145.5	2131.2	2116.9	2096.5
8.5°	2123.0	2139.4	2156.5	2163.1	2165.9	2161.4	2152.0	2139.4	2124.3	2109.1	2087.1
9°	2115.7	2132.8	2151.2	2158.2	2161.0	2156.5	2146.3	2132.8	2116.9	2100.6	2077.7
9.5°	2107.5	2125.5	2145.5	2152.9	2155.7	2150.8	2140.2	2125.9	2108.7	2092.0	2067.1
10°	2098.9	2118.1	2139.4	2147.1	2149.6	2145.1	2133.7	2118.5	2100.2	2082.2	2056.4
10.5°	2089.5	2110.0	2132.8	2141.0	2143.5	2138.2	2126.7	2110.4	2091.2	2072.4	2045.4
11°	2080.5	2101.8	2125.5	2134.1	2136.5	2131.2	2119.0	2101.8	2082.2	2061.7	2033.6
11.5°	2070.3	2092.8	2117.7	2127.1	2129.2	2123.4	2110.8	2092.8	2072.0	2050.7	2020.5
12°	2059.3	2083.0	2109.6	2119.8	2121.4	2115.7	2102.2	2083.4	2061.3	2038.9	2007.0
12.5°	2047.4	2072.4	2101.0	2111.2	2113.2	2106.7	2092.8	2073.2	2049.9	2026.2	1992.7
13°	2034.8	2061.7	2091.2	2102.6	2103.8	2097.7	2083.0	2062.6	2038.1	2013.1	1977.6
13.5°	2021.3	2049.5	2081.8	2093.2	2094.0	2087.5	2072.4	2050.7	2025.0	1999.2	1962.1
14°	2007.4	2037.2	2071.1	2083.0	2083.8	2076.9	2060.9	2038.5	2011.5	1984.1	1945.3
14.5°	1992.7	2023.7	2059.7	2072.0	2072.0	2064.6	2049.1	2025.4	1997.6	1968.6	1929.4
15°	1977.6	2009.4	2047.4	2060.1	2059.7	2052.8	2036.0	2011.9	1982.9	1953.1	1913.4
15.5°	1962.5	1994.7	2034.4	2047.4	2047.4	2039.7	2022.5	1997.6	1967.8	1937.5	1899.1
16°	1948.2	1980.4	2020.5	2034.4	2034.0	2026.2	2008.6	1982.9	1952.7	1922.4	1885.2
16.5°	1935.1	1966.1	2006.2	2020.5	2019.7	2012.3	1994.3	1968.6	1938.8	1908.5	1871.3
17°	1921.6	1953.1	1991.9	2007.0	2006.2	1998.4	1980.0	1954.7	1925.3	1895.5	1857.5
17.5°	1908.9	1940.0	1978.4	1993.1	1993.1	1985.3	1966.5	1941.6	1912.2	1882.0	1843.6
18°	1895.9	1927.3	1964.9	1980.4	1981.3	1972.7	1954.3	1928.5	1898.7	1868.1	1827.2
18.5°	1882.0	1913.8	1952.2	1968.2	1968.6	1960.4	1940.8	1914.7	1884.8	1853.4	1808.4
19°	1865.6	1900.8	1939.2	1955.5	1956.3	1947.8	1927.7	1902.0	1869.7	1836.2	1785.5
19.5°	1846.8	1886.1	1926.5	1942.4	1944.1	1935.1	1914.7	1887.3	1852.6	1815.8	1759.4
20°	1826.0	1869.3	1913.0	1930.2	1929.8	1921.2	1900.8	1871.8	1832.9	1792.5	1728.7
20.5°	1801.9	1850.5	1899.1	1915.9	1913.4	1905.7	1885.6	1854.6	1810.5	1766.7	1694.4
21°	1775.7	1830.5	1883.6	1899.9	1894.6	1887.7	1869.3	1835.4	1786.8	1737.7	1654.8

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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°	1685.4	1754.9	1828.9	1840.3	1826.4	1823.5	1810.9	1766.3	1701.4	1633.5	1526.9
23°	1652.7	1725.1	1806.4	1816.6	1799.4	1797.4	1788.0	1739.0	1671.5	1594.3	1484.8
23.5°	1619.2	1693.6	1781.5	1790.0	1770.4	1769.2	1761.0	1708.3	1639.3	1553.5	1443.1
24°	1582.1	1660.1	1753.7	1760.6	1741.8	1740.6	1731.6	1676.0	1605.8	1512.2	1403.9
24.5°	1543.2	1624.6	1722.2	1730.4	1713.6	1709.1	1697.7	1642.5	1570.2	1470.9	1364.3
25°	1502.8	1587.8	1685.0	1697.7	1684.6	1678.1	1661.7	1606.6	1532.6	1431.7	1324.7
25.5°	1459.9	1548.6	1645.4	1665.8	1655.6	1647.0	1620.5	1568.2	1491.8	1392.9	1284.6
26°	1416.2	1506.1	1600.0	1631.5	1625.0	1615.2	1575.5	1527.3	1449.7	1354.9	1243.7
26.5°	1370.8	1460.3	1551.8	1596.4	1592.3	1579.6	1527.7	1484.0	1405.6	1315.7	1201.7
27°	1325.5	1412.9	1501.6	1558.4	1557.5	1542.8	1481.5	1438.2	1361.8	1276.0	1158.4
27.5°	1280.5	1363.1	1452.1	1520.0	1518.7	1504.0	1434.6	1390.4	1315.7	1236.0	1113.0
28°	1236.0	1312.0	1403.9	1477.1	1479.1	1464.0	1389.6	1339.4	1269.1	1194.7	1068.5
28.5°	1191.0	1261.3	1359.0	1433.3	1437.8	1419.9	1345.5	1290.3	1224.5	1152.2	1024.7
29°	1144.9	1211.5	1316.1	1386.8	1398.2	1374.5	1305.9	1242.1	1176.3	1107.7	983.1
29.5°	1099.1	1160.8	1275.6	1339.4	1357.3	1327.5	1264.6	1195.1	1128.5	1060.3	941.8
30°	1052.9	1113.8	1234.8	1290.7	1316.1	1280.9	1224.1	1149.8	1081.5	1014.1	900.9
30.5°	1006.8	1065.2	1193.9	1244.6	1271.9	1233.9	1183.3	1104.0	1035.8	967.1	861.3
31°	958.6	1018.6	1150.2	1198.8	1227.4	1189.0	1141.2	1059.1	988.4	921.4	821.3
31.5°	911.2	971.2	1105.6	1153.5	1178.8	1144.1	1095.8	1014.1	941.8	876.0	781.2
32°	863.4	925.5	1059.1	1109.7	1129.8	1100.3	1050.1	968.8	895.6	832.7	740.8
32.5°	815.5	880.9	1011.7	1067.6	1079.5	1055.4	1003.9	922.6	851.1	790.2	697.9
33°	767.7	836.8	963.5	1024.3	1029.2	1012.1	957.7	875.2	804.9	748.5	655.8
33.5°	720.3	792.7	916.9	980.6	979.8	966.7	912.0	829.8	760.0	706.5	614.5
34°	674.2	751.0	872.7	936.1	930.4	922.6	868.7	786.1	715.9	663.6	574.5
34.5°	630.0	708.9	830.7	891.5	881.3	876.4	828.2	743.2	672.9	620.6	534.4
35°	588.4	667.6	788.2	845.4	832.3	831.5	786.1	702.0	630.0	577.7	496.4
35.5°	548.3	628.4	748.1	799.6	784.9	787.8	746.1	661.9	589.2	536.1	459.7
36°	509.5	591.6	708.1	754.3	738.7	743.6	704.8	624.3	549.6	494.8	424.1
36.5°	471.5	554.9	668.0	711.4	693.0	699.1	663.1	587.1	511.6	455.6	389.0
37°	435.6	517.7	626.8	668.9	649.3	655.4	620.6	550.8	472.7	417.6	353.8
37.5°	401.6	482.1	586.3	628.0	607.6	612.5	578.6	514.4	438.0	384.5	318.7
38°	368.5	446.2	545.1	587.6	567.1	570.8	537.3	479.3	404.1	351.8	284.0
38.5°	336.7	411.0	505.4	546.3	527.9	529.1	497.3	444.1	373.5	318.7	251.7
39°	307.3	376.7	468.2	507.5	489.5	489.5	458.0	409.4	342.8	286.0	221.9
39.5°	279.1	343.6	432.3	468.7	451.9	450.3	421.7	376.7	312.2	259.0	194.5
40°	252.5	312.2	399.2	430.2	415.1	413.1	389.4	344.4	281.5	231.3	170.4
40.5°	227.6	281.9	366.1	392.7	382.0	377.9	357.1	312.2	254.1	205.9	149.1
41°	203.9	253.3	335.0	355.5	348.9	343.2	324.8	279.9	229.2	182.2	130.7
41.5°	182.6	227.2	304.4	320.7	315.8	308.5	292.6	251.3	205.1	160.2	114.8
42°	162.6	202.7	274.2	287.6	282.7	273.3	260.3	224.7	183.0	140.1	101.7
42.5°	144.2	179.8	244.7	257.0	254.6	243.1	230.9	199.0	162.6	123.0	90.3
43°	129.5	158.1	215.3	228.0	226.4	214.5	202.3	175.3	143.8	107.5	79.3
43.5°	115.2	140.1	188.0	201.0	201.0	188.4	175.7	154.0	126.3	94.0	69.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	71.9	92.3	122.2	136.1	130.3	122.6	110.7	98.9	82.1	62.1	46.6
45.5°	61.7	76.8	105.4	119.3	110.3	105.0	93.6	84.6	70.3	53.5	41.7
46°	52.3	65.0	89.1	102.6	93.2	89.1	79.3	71.1	59.2	45.8	37.2
46.5°	43.7	54.3	72.3	85.8	77.6	75.2	66.6	60.1	49.8	41.3	32.3
47°	36.8	44.9	60.9	69.5	64.1	62.5	55.6	49.8	44.5	36.4	27.8
47.5°	30.6	37.2	50.3	57.6	52.7	51.9	50.3	44.5	39.2	31.9	22.9
48°	26.6	30.6	41.7	47.4	47.0	46.2	44.9	39.2	33.9	27.4	21.2
48.5°	24.1	26.6	34.3	38.4	40.9	40.9	39.6	34.3	28.6	22.9	20.4
49°	22.9	24.1	29.0	31.5	35.1	35.1	34.3	29.0	23.3	21.7	19.6
49.5°	21.7	22.9	25.7	27.0	29.4	29.4	28.6	24.1	22.1	20.4	18.8
50°	20.8	21.7	23.7	24.5	23.7	24.1	23.3	22.5	21.2	19.6	17.6
50.5°	19.6	20.8	22.5	22.9	22.5	22.9	22.5	21.7	20.0	18.8	16.8
51°	18.8	19.6	21.7	22.1	21.7	21.7	21.2	20.4	19.2	17.6	15.5
51.5°	17.6	18.8	20.4	20.8	20.4	20.4	20.0	19.2	18.0	16.8	14.7
52°	16.8	17.6	19.6	20.0	19.6	19.6	19.2	18.0	16.8	15.5	13.9
52.5°	15.5	16.3	18.4	18.8	18.4	18.4	18.0	17.2	15.9	14.7	13.1
53°	14.7	15.5	17.2	17.6	17.2	17.2	16.8	15.9	14.7	13.9	12.3
53.5°	13.9	14.3	15.9	16.3	15.9	15.9	15.5	15.1	13.9	13.1	11.4
54°	13.1	13.5	15.1	15.5	15.1	15.1	14.7	13.9	13.1	12.3	11.0
54.5°	12.3	12.7	14.3	14.7	13.9	13.9	13.9	13.1	12.3	11.4	10.2
55°	11.4	12.3	13.1	13.5	13.1	13.1	13.1	12.3	11.4	11.0	9.8
55.5°	10.6	11.4	12.3	12.7	12.3	12.3	12.3	11.4	11.0	10.2	9.0
56°	10.2	10.6	11.4	11.8	11.4	11.4	11.4	11.0	10.2	9.8	8.6
56.5°	9.4	9.8	11.0	11.0	11.0	11.0	10.6	10.2	9.8	9.0	8.2
57°	9.0	9.4	10.2	10.6	10.2	10.2	10.2	9.8	9.0	8.6	7.8
57.5°	8.2	8.6	9.4	9.8	9.4	9.4	9.4	9.0	8.6	8.2	7.4
58°	7.8	8.2	9.0	9.4	9.0	9.0	9.0	8.6	8.2	7.8	6.9
58.5°	7.4	7.8	8.6	8.6	8.6	8.6	8.2	8.2	7.8	7.4	6.5
59°	6.9	7.4	7.8	8.2	7.8	7.8	7.8	7.8	7.4	6.9	6.1
59.5°	6.5	6.9	7.4	7.8	7.4	7.4	7.4	6.9	6.9	6.5	5.7
60°	6.1	6.5	6.9	7.4	6.9	6.9	6.9	6.5	6.5	6.1	5.3
60.5°	5.7	6.1	6.5	6.9	6.5	6.5	6.5	6.1	6.1	5.7	5.3
61°	5.7	5.7	6.1	6.5	6.1	6.1	6.1	6.1	5.7	5.3	4.9
61.5°	5.3	5.3	5.7	6.1	5.7	5.7	5.7	5.7	5.3	4.9	4.5
62°	4.9	4.9	5.7	5.7	5.7	5.7	5.3	5.3	4.9	4.9	4.5
62.5°	4.5	4.9	5.3	5.3	5.3	5.3	5.3	4.9	4.9	4.5	4.1
63°	4.5	4.5	4.9	4.9	4.9	4.9	4.9	4.9	4.5	4.5	4.1
63.5°	4.1	4.1	4.5	4.9	4.5	4.5	4.5	4.5	4.1	4.1	3.7
64°	4.1	4.1	4.5	4.5	4.5	4.5	4.5	4.1	4.1	3.7	3.7
64.5°	3.7	3.7	4.1	4.1	4.1	4.1	4.1	4.1	3.7	3.7	3.3
65°	3.7	3.7	4.1	4.1	3.7	3.7	3.7	3.7	3.7	3.3	3.3
65.5°	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	2.9
66°	3.3	3.3	3.3	3.7	3.3	3.3	3.3	3.3	3.3	2.9	2.9



TEST NUMBER: P776279

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-5000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	2.5	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.5	2.5
68°	2.5	2.5	2.9	2.9	2.9	2.9	2.9	2.5	2.5	2.5	2.0
68.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.0
69°	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.0	2.0
69.5°	2.0	2.0	2.5	2.5	2.5	2.5	2.0	2.0	2.0	2.0	2.0
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.6
70.5°	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0	1.6	1.6	1.6
71°	1.6	1.6	2.0	2.0	2.0	2.0	2.0	1.6	1.6	1.6	1.6
71.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
72°	1.2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.2
72.5°	1.2	1.2	1.6	1.6	1.6	1.6	1.6	1.6	1.2	1.2	1.2
73°	1.2	1.2	1.6	1.6	1.6	1.6	1.6	1.2	1.2	1.2	1.2
73.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
74°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
74.5°	0.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.8	0.8	0.8
75°	0.8	0.8	1.2	1.2	1.2	1.2	1.2	1.2	0.8	0.8	0.8
75.5°	0.8	0.8	1.2	1.2	1.2	1.2	1.2	0.8	0.8	0.8	0.8
76°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
76.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.4	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.4	0.4	0.4
78°	0.4	0.4	0.8	0.8	0.8	0.8	0.8	0.8	0.4	0.4	0.4
78.5°	0.4	0.4	0.8	0.8	0.8	0.8	0.8	0.4	0.4	0.4	0.4
79°	0.4	0.4	0.4	0.8	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	0.4	0.4	0.4
80.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
81°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
81.5°	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
82°	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
82.5°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0
83°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	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: P776279
CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-5000K

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: P776279

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2184.3	2184.3	2184.3	2184.3	2184.3	2184.3
0.5°	2179.0	2183.5	2182.3	2182.3	2183.1	2184.7
1°	2175.7	2180.6	2179.8	2179.8	2181.9	2183.9
1.5°	2172.5	2177.4	2176.6	2177.4	2179.8	2183.1
2°	2168.4	2173.3	2172.9	2174.1	2177.4	2181.5
2.5°	2163.9	2169.2	2168.8	2170.4	2174.5	2179.4
3°	2159.4	2164.7	2164.3	2166.8	2171.3	2177.0
3.5°	2154.1	2159.4	2159.4	2162.3	2168.0	2174.5
4°	2148.4	2154.1	2154.1	2157.4	2163.5	2171.3
4.5°	2142.6	2148.0	2148.4	2152.0	2159.0	2167.6
5°	2135.7	2141.8	2142.2	2146.7	2154.1	2163.5
5.5°	2129.2	2134.9	2135.3	2140.6	2149.2	2159.0
6°	2121.4	2127.5	2128.3	2134.1	2143.1	2154.1
6.5°	2114.0	2119.8	2121.0	2126.7	2136.9	2148.8
7°	2105.5	2111.6	2112.8	2119.8	2130.4	2143.5
7.5°	2096.5	2103.0	2104.7	2111.6	2123.0	2136.9
8°	2087.5	2093.6	2095.7	2103.0	2115.7	2130.4
8.5°	2077.7	2084.2	2086.3	2094.0	2107.5	2123.0
9°	2067.5	2074.0	2076.5	2085.0	2098.9	2115.7
9.5°	2057.3	2063.8	2066.2	2074.8	2089.9	2107.5
10°	2045.8	2052.8	2055.2	2065.0	2080.5	2098.9
10.5°	2034.4	2040.9	2043.8	2054.0	2070.3	2089.5
11°	2021.3	2028.7	2031.9	2042.1	2059.3	2080.5
11.5°	2008.2	2015.2	2018.4	2029.5	2047.9	2070.3
12°	1994.3	2001.7	2004.5	2016.4	2035.6	2059.3
12.5°	1979.2	1986.6	1989.4	2001.3	2022.1	2047.4
13°	1963.7	1970.6	1973.5	1986.6	2008.6	2034.8
13.5°	1947.3	1954.7	1958.0	1971.0	1993.5	2021.3
14°	1930.2	1937.9	1941.2	1954.7	1978.4	2007.4
14.5°	1913.8	1921.2	1924.5	1938.8	1962.5	1992.7
15°	1898.7	1905.3	1908.5	1922.0	1946.9	1977.6
15.5°	1884.4	1890.5	1894.2	1907.3	1931.4	1962.5
16°	1870.1	1876.7	1880.3	1893.4	1917.5	1948.2
16.5°	1855.8	1862.8	1866.0	1879.9	1904.4	1935.1
17°	1841.9	1848.9	1852.1	1866.4	1891.4	1921.6
17.5°	1826.8	1834.2	1837.8	1853.0	1877.9	1908.9
18°	1807.2	1817.4	1821.5	1838.2	1864.4	1895.9
18.5°	1785.1	1794.9	1800.3	1821.1	1848.9	1882.0
19°	1759.8	1770.0	1777.4	1800.3	1830.5	1865.6
19.5°	1730.8	1740.2	1749.6	1776.1	1809.2	1846.8
20°	1698.1	1705.9	1718.5	1747.1	1784.7	1826.0
20.5°	1662.6	1669.5	1683.8	1715.3	1756.1	1801.9
21°	1625.0	1631.5	1646.6	1678.9	1724.3	1775.7

TEST NUMBER: P776279

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1497.5	1518.3	1523.2	1552.2	1610.3	1685.4
23°	1452.9	1480.7	1480.7	1507.7	1567.4	1652.7
23.5°	1408.0	1439.9	1437.4	1463.6	1526.5	1619.2
24°	1365.1	1397.0	1392.1	1419.9	1485.6	1582.1
24.5°	1320.6	1351.6	1346.7	1379.0	1446.4	1543.2
25°	1277.3	1303.8	1302.2	1336.5	1408.4	1502.8
25.5°	1235.2	1257.2	1257.2	1295.6	1370.4	1459.9
26°	1193.5	1208.6	1211.1	1254.4	1331.6	1416.2
26.5°	1150.2	1162.0	1165.7	1213.9	1292.0	1370.8
27°	1107.3	1113.0	1121.6	1170.6	1250.3	1325.5
27.5°	1063.6	1065.2	1077.5	1126.9	1207.0	1280.5
28°	1021.1	1018.2	1032.9	1081.5	1160.4	1236.0
28.5°	977.8	970.4	990.8	1036.2	1113.8	1191.0
29°	934.4	922.2	946.7	991.2	1064.4	1144.9
29.5°	891.1	877.2	903.8	948.7	1019.0	1099.1
30°	848.2	833.1	859.7	905.4	971.6	1052.9
30.5°	804.5	789.4	816.0	863.4	927.5	1006.8
31°	762.0	747.7	769.8	821.7	883.4	958.6
31.5°	719.1	708.5	725.7	782.5	840.5	911.2
32°	677.9	669.3	683.6	742.8	798.0	863.4
32.5°	636.6	631.3	643.1	703.2	757.5	815.5
33°	597.8	592.9	604.3	661.9	715.4	767.7
33.5°	559.0	554.0	567.1	621.5	672.5	720.3
34°	521.8	517.7	530.4	581.4	628.8	674.2
34.5°	486.2	482.5	495.2	541.0	586.7	630.0
35°	451.1	449.0	460.1	502.2	543.8	588.4
35.5°	416.8	417.2	427.8	464.6	502.2	548.3
36°	386.9	388.2	395.1	428.2	462.1	509.5
36.5°	357.5	359.2	363.6	393.1	424.1	471.5
37°	327.7	332.2	333.8	358.7	388.2	435.6
37.5°	298.3	305.6	305.6	325.2	353.8	401.6
38°	268.4	279.5	279.5	292.6	321.2	368.5
38.5°	244.3	255.4	254.1	261.5	289.7	336.7
39°	220.2	232.5	230.9	232.5	260.3	307.3
39.5°	197.8	210.8	208.8	205.1	232.5	279.1
40°	176.1	190.8	188.0	179.4	205.1	252.5
40.5°	157.3	171.2	167.9	157.3	181.0	227.6
41°	138.5	153.6	149.1	139.3	158.5	203.9
41.5°	122.2	138.9	134.8	125.4	138.9	182.6
42°	107.1	124.6	120.5	111.5	125.0	162.6
42.5°	94.0	110.3	106.6	98.1	111.1	144.2
43°	82.1	96.0	92.3	84.2	97.2	129.5
43.5°	71.5	81.7	78.0	74.4	83.4	115.2

TEST NUMBER: P776279

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	47.4	51.5	49.8	49.8	55.6	71.9
45.5°	41.7	43.3	42.1	43.3	48.6	61.7
46°	35.5	36.0	36.0	37.2	41.7	52.3
46.5°	29.8	29.8	30.2	31.9	35.5	43.7
47°	24.1	25.7	25.7	27.4	30.2	36.8
47.5°	22.1	23.3	23.3	24.5	26.6	30.6
48°	20.8	21.7	22.1	22.9	24.1	26.6
48.5°	20.0	20.8	20.8	21.7	22.5	24.1
49°	19.2	20.0	20.0	20.8	21.7	22.9
49.5°	18.0	18.8	19.2	19.6	20.8	21.7
50°	17.2	18.0	18.0	18.8	19.6	20.8
50.5°	15.9	16.8	17.2	17.6	18.8	19.6
51°	15.1	15.9	15.9	16.8	17.6	18.8
51.5°	14.3	15.1	15.1	15.5	16.8	17.6
52°	13.5	13.9	14.3	14.7	15.5	16.8
52.5°	12.7	13.1	13.5	13.9	14.7	15.5
53°	11.8	12.3	12.7	13.1	13.9	14.7
53.5°	11.4	11.8	11.8	12.3	13.1	13.9
54°	10.6	11.0	11.0	11.8	12.3	13.1
54.5°	10.2	10.2	10.6	11.0	11.4	12.3
55°	9.4	9.8	9.8	10.2	11.0	11.4
55.5°	9.0	9.4	9.4	9.8	10.2	10.6
56°	8.6	8.6	9.0	9.4	9.8	10.2
56.5°	7.8	8.2	8.2	8.6	9.0	9.4
57°	7.4	7.8	7.8	8.2	8.6	9.0
57.5°	6.9	7.4	7.4	7.8	8.2	8.2
58°	6.5	6.9	6.9	7.4	7.8	7.8
58.5°	6.5	6.5	6.5	6.9	7.4	7.4
59°	6.1	6.1	6.1	6.5	6.9	6.9
59.5°	5.7	5.7	6.1	6.1	6.5	6.5
60°	5.3	5.7	5.7	5.7	6.1	6.1
60.5°	4.9	5.3	5.3	5.3	5.7	5.7
61°	4.9	4.9	4.9	5.3	5.3	5.7
61.5°	4.5	4.5	4.9	4.9	4.9	5.3
62°	4.5	4.5	4.5	4.5	4.9	4.9
62.5°	4.1	4.1	4.1	4.5	4.5	4.5
63°	3.7	4.1	4.1	4.1	4.1	4.5
63.5°	3.7	3.7	3.7	4.1	4.1	4.1
64°	3.3	3.7	3.7	3.7	3.7	4.1
64.5°	3.3	3.3	3.3	3.3	3.7	3.7
65°	3.3	3.3	3.3	3.3	3.3	3.7
65.5°	2.9	2.9	2.9	3.3	3.3	3.3
66°	2.9	2.9	2.9	2.9	2.9	3.3



TEST NUMBER: P776279

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-5000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	2.5	2.5	2.5	2.5	2.5	2.5
68°	2.0	2.5	2.5	2.5	2.5	2.5
68.5°	2.0	2.0	2.0	2.0	2.0	2.5
69°	2.0	2.0	2.0	2.0	2.0	2.0
69.5°	1.6	2.0	2.0	2.0	2.0	2.0
70°	1.6	1.6	1.6	1.6	2.0	2.0
70.5°	1.6	1.6	1.6	1.6	1.6	1.6
71°	1.6	1.6	1.6	1.6	1.6	1.6
71.5°	1.6	1.6	1.6	1.6	1.6	1.6
72°	1.2	1.2	1.2	1.2	1.2	1.2
72.5°	1.2	1.2	1.2	1.2	1.2	1.2
73°	1.2	1.2	1.2	1.2	1.2	1.2
73.5°	1.2	1.2	1.2	1.2	1.2	1.2
74°	1.2	1.2	1.2	1.2	1.2	1.2
74.5°	0.8	0.8	0.8	0.8	0.8	0.8
75°	0.8	0.8	0.8	0.8	0.8	0.8
75.5°	0.8	0.8	0.8	0.8	0.8	0.8
76°	0.8	0.8	0.8	0.8	0.8	0.8
76.5°	0.8	0.8	0.8	0.8	0.8	0.8
77°	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.4	0.8	0.8	0.8	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	0.4	0.4
81°	0.4	0.4	0.4	0.4	0.4	0.4
81.5°	0.4	0.4	0.4	0.4	0.0	0.0
82°	0.4	0.4	0.4	0.4	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: P776279

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-5000K

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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— 0°-180° - - 45°-225° - - - - 90°-270° - · - 135°-315°

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21.5°	1747.1	1807.6	1866.9	1881.6	1874.2	1868.5	1851.3	1814.6	1759.8	1705.5	1613.5
22°	1716.5	1782.3	1848.1	1862.4	1851.3	1846.8	1832.5	1792.1	1731.2	1670.7	1570.2



44°	100.9	124.2	162.2	176.1	175.3	163.8	151.6	133.6	109.9	82.1	61.7
44.5°	86.2	108.3	138.9	152.8	152.0	142.2	129.9	115.2	95.2	71.5	53.9



66.5°	2.9	2.9	3.3	3.3	3.3	3.3	3.3	3.3	2.9	2.9	2.5
67°	2.9	2.9	3.3	3.3	2.9	2.9	2.9	2.9	2.9	2.9	2.5



89°	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

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21.5°	1584.9	1593.5	1607.4	1638.9	1689.1	1747.1
22°	1542.8	1555.1	1566.1	1596.8	1650.3	1716.5



44°	62.1	70.7	67.4	65.4	73.1	100.9
44.5°	53.1	60.9	58.4	57.6	64.1	86.2

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66.5°	2.5	2.9	2.9	2.9	2.9	2.9
67°	2.5	2.5	2.5	2.5	2.9	2.9

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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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(END OF REPORT)