

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: P776276

Luminaire Tested: HCDJBL3040CSD-HCD42TRMB-4000lm-3000K

Issue Date: 2/13/2024

Test Information

Test Method: LM-79-2019
Report Number: P776276
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-3000K
Description: 4 INCH ROUND NARROW MATTE BLACK TRIM
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT
Ballast/Driver: -

Summary

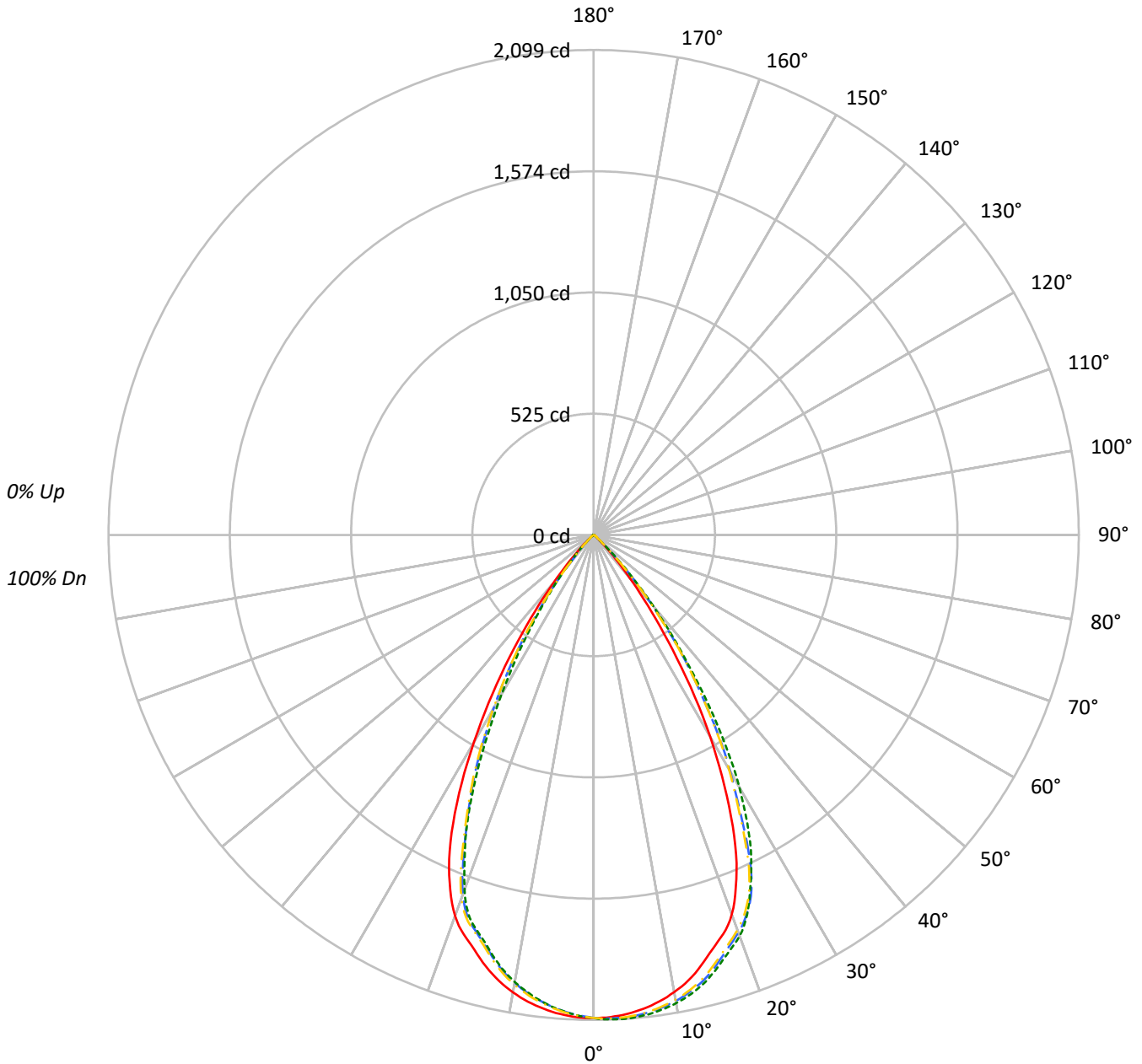
Lumens per Lamp: N/A
Luminaire Lumens: 1846.4 lumens
Efficiency: N/A
Efficacy: 48.0 lumens/watt
Spacing Criteria (0/90/45): 0.95 / 0.94 / 0.88
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 38.5
Input Voltage (V): NR
Input Current (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	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°	263127	263127	263127	263127
5°	261618	264675	261719	259003
10°	256745	262943	256899	251097
15°	246625	256865	247289	237609
20°	234077	247389	234974	218689
25°	199750	223912	203707	173297
30°	146467	183058	150434	115892
35°	86527	122400	92657	66032
40°	39708	65287	44275	29998
45°	12245	22212	13989	8774
50°	3896	4444	3974	3368
55°	2414	2743	2414	2062
60°	1485	1661	1586	1384
65°	1042	1042	1042	923
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: 23173 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.7	10.6
10°-20°	532.3	28.8
20°-30°	646.0	35.0
30°-40°	380.6	20.6
40°-50°	76.6	4.1
50°-60°	10.4	0.6
60°-70°	3.5	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°	1374.1	74.4
0°-40°	1754.7	95.0
0°-60°	1841.7	99.7
0°-90°	1846.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1846.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2091	2091	2091	2091	2091	
5°	2071	2095	2072	2050	2071	196
15°	1893	1972	1898	1824	1893	532
25°	1438	1612	1467	1248	1438	645
35°	563	797	603	430	563	358
45°	69	125	79	49	69	67
55°	11	12	11	9	11	10
65°	4	4	4	3	4	3
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°	2090.8	2090.8	2090.8	2090.8	2090.8	2090.8	2090.8	2090.8	2090.8	2090.8	2090.8
0.5°	2091.2	2092.4	2091.2	2090.4	2094.7	2093.2	2092.0	2091.6	2091.2	2090.8	2087.7
1°	2090.4	2092.4	2092.4	2092.0	2096.3	2094.7	2093.2	2092.0	2090.8	2089.3	2085.0
1.5°	2089.7	2092.4	2093.6	2093.6	2097.5	2095.9	2093.6	2091.6	2089.7	2087.3	2082.2
2°	2088.1	2091.6	2094.0	2094.4	2098.3	2096.7	2094.0	2091.2	2088.5	2085.4	2078.7
2.5°	2086.1	2090.8	2094.0	2094.7	2099.0	2097.1	2093.6	2090.4	2086.5	2082.6	2074.8
3°	2083.8	2089.3	2093.6	2095.1	2099.0	2097.1	2093.2	2088.9	2084.6	2079.5	2070.9
3.5°	2081.4	2087.7	2093.2	2094.7	2098.7	2096.3	2092.0	2087.3	2081.8	2076.0	2066.6
4°	2078.3	2085.4	2092.0	2094.0	2097.9	2095.5	2090.8	2085.0	2078.7	2072.1	2061.5
4.5°	2074.8	2083.0	2090.8	2093.2	2096.7	2094.4	2088.9	2082.6	2075.6	2068.1	2056.0
5°	2070.9	2079.9	2088.9	2091.6	2095.1	2092.4	2086.9	2079.9	2071.7	2063.5	2050.2
5.5°	2066.6	2076.8	2086.5	2090.1	2093.2	2090.4	2084.2	2076.8	2067.4	2058.4	2044.3
6°	2061.9	2072.8	2083.8	2087.7	2090.8	2087.7	2081.1	2072.8	2062.7	2052.9	2037.6
6.5°	2056.8	2068.9	2080.7	2085.0	2088.5	2085.0	2077.5	2068.5	2057.6	2046.6	2030.6
7°	2051.7	2064.2	2077.1	2081.8	2085.0	2081.4	2074.0	2063.8	2052.5	2040.4	2022.8
7.5°	2045.5	2059.2	2073.2	2078.7	2081.4	2077.5	2070.1	2059.2	2046.6	2033.3	2015.0
8°	2039.2	2053.7	2069.3	2074.8	2077.5	2073.6	2065.0	2053.7	2040.0	2026.3	2006.7
8.5°	2032.2	2047.8	2064.2	2070.5	2073.2	2068.9	2059.9	2047.8	2033.3	2018.9	1997.8
9°	2025.1	2041.6	2059.2	2065.8	2068.5	2064.2	2054.5	2041.6	2026.3	2010.7	1988.8
9.5°	2017.3	2034.5	2053.7	2060.7	2063.5	2058.8	2048.6	2034.9	2018.5	2002.4	1978.6
10°	2009.1	2027.5	2047.8	2055.2	2057.6	2053.3	2042.3	2027.9	2010.3	1993.1	1968.4
10.5°	2000.1	2019.7	2041.6	2049.4	2051.7	2046.6	2035.7	2020.0	2001.7	1983.7	1957.9
11°	1991.5	2011.8	2034.5	2042.7	2045.1	2040.0	2028.3	2011.8	1993.1	1973.5	1946.5
11.5°	1981.7	2003.2	2027.1	2036.1	2038.0	2032.6	2020.4	2003.2	1983.3	1962.9	1934.0
12°	1971.2	1993.8	2019.3	2029.0	2030.6	2025.1	2012.2	1994.2	1973.1	1951.6	1921.1
12.5°	1959.8	1983.7	2011.0	2020.8	2022.8	2016.5	2003.2	1984.5	1962.2	1939.5	1907.4
13°	1947.7	1973.5	2001.7	2012.6	2013.8	2007.9	1993.8	1974.3	1950.8	1927.0	1892.9
13.5°	1934.8	1961.8	1992.7	2003.6	2004.4	1998.1	1983.7	1962.9	1938.3	1913.7	1878.1
14°	1921.5	1950.0	1982.5	1993.8	1994.6	1988.0	1972.7	1951.2	1925.4	1899.2	1862.0
14.5°	1907.4	1937.1	1971.5	1983.3	1983.3	1976.2	1961.4	1938.7	1912.1	1884.3	1846.8
15°	1892.9	1923.4	1959.8	1971.9	1971.5	1964.9	1948.9	1925.8	1898.0	1869.5	1831.5
15.5°	1878.5	1909.4	1947.3	1959.8	1959.8	1952.4	1936.0	1912.1	1883.5	1854.6	1817.8
16°	1864.8	1895.7	1934.0	1947.3	1946.9	1939.5	1922.7	1898.0	1869.1	1840.1	1804.5
16.5°	1852.3	1882.0	1920.3	1934.0	1933.2	1926.2	1909.0	1884.3	1855.8	1826.8	1791.2
17°	1839.4	1869.5	1906.6	1921.1	1920.3	1912.9	1895.3	1871.0	1842.9	1814.3	1778.0
17.5°	1827.2	1857.0	1893.7	1907.8	1907.8	1900.4	1882.4	1858.5	1830.4	1801.4	1764.7
18°	1814.7	1844.8	1880.8	1895.7	1896.5	1888.2	1870.6	1846.0	1817.5	1788.1	1749.0
18.5°	1801.4	1831.9	1868.7	1883.9	1884.3	1876.5	1857.7	1832.7	1804.2	1774.0	1731.0
19°	1785.8	1819.4	1856.2	1871.8	1872.6	1864.4	1845.2	1820.6	1789.7	1757.6	1709.1
19.5°	1767.8	1805.3	1844.0	1859.3	1860.9	1852.3	1832.7	1806.5	1773.3	1738.1	1684.1
20°	1747.8	1789.3	1831.1	1847.6	1847.2	1839.0	1819.4	1791.6	1754.5	1715.8	1654.8
20.5°	1724.8	1771.3	1817.8	1833.9	1831.5	1824.1	1804.9	1775.2	1733.0	1691.1	1621.9
21°	1699.7	1752.1	1803.0	1818.6	1813.5	1806.9	1789.3	1756.8	1710.3	1663.4	1584.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	1613.3	1679.8	1750.6	1761.5	1748.2	1745.5	1733.4	1690.7	1628.6	1563.6	1461.5
23°	1582.0	1651.2	1729.1	1738.8	1722.4	1720.5	1711.5	1664.5	1600.0	1526.1	1421.3
23.5°	1549.9	1621.1	1705.2	1713.4	1694.6	1693.5	1685.7	1635.2	1569.1	1487.0	1381.4
24°	1514.3	1589.0	1678.6	1685.3	1667.3	1666.1	1657.5	1604.3	1537.0	1447.5	1343.8
24.5°	1477.2	1555.0	1648.5	1656.3	1640.3	1636.0	1625.0	1572.2	1503.0	1408.0	1305.9
25°	1438.5	1519.8	1612.9	1625.0	1612.5	1606.3	1590.6	1537.8	1467.0	1370.4	1268.0
25.5°	1397.4	1482.3	1575.0	1594.5	1584.7	1576.5	1551.1	1501.1	1427.9	1333.3	1229.6
26°	1355.6	1441.6	1531.6	1561.7	1555.4	1546.0	1508.1	1461.9	1387.6	1296.9	1190.5
26.5°	1312.1	1397.8	1485.4	1528.0	1524.1	1512.0	1462.3	1420.5	1345.4	1259.3	1150.2
27°	1268.7	1352.4	1437.3	1491.7	1490.9	1476.8	1418.1	1376.7	1303.5	1221.4	1108.8
27.5°	1225.7	1304.7	1390.0	1454.9	1453.7	1439.6	1373.2	1330.9	1259.3	1183.1	1065.4
28°	1183.1	1255.8	1343.8	1413.8	1415.8	1401.3	1330.1	1282.0	1214.8	1143.6	1022.7
28.5°	1140.1	1207.3	1300.8	1372.0	1376.3	1359.1	1287.9	1235.1	1172.1	1102.9	980.9
29°	1095.9	1159.6	1259.7	1327.4	1338.4	1315.7	1250.0	1189.0	1126.0	1060.3	941.0
29.5°	1052.1	1111.1	1221.0	1282.0	1299.2	1270.7	1210.5	1144.0	1080.2	1014.9	901.5
30°	1007.9	1066.1	1181.9	1235.5	1259.7	1226.1	1171.7	1100.6	1035.2	970.7	862.4
30.5°	963.7	1019.6	1142.8	1191.3	1217.5	1181.1	1132.6	1056.8	991.4	925.7	824.4
31°	917.5	975.0	1101.0	1147.5	1174.9	1138.1	1092.3	1013.7	946.1	881.9	786.1
31.5°	872.2	929.7	1058.3	1104.1	1128.3	1095.1	1048.9	970.7	901.5	838.5	747.8
32°	826.4	885.8	1013.7	1062.2	1081.4	1053.2	1005.1	927.3	857.3	797.1	709.1
32.5°	780.6	843.2	968.4	1022.0	1033.3	1010.2	960.9	883.1	814.7	756.4	668.0
33°	734.9	801.0	922.2	980.5	985.2	968.8	916.7	837.7	770.5	716.5	627.7
33.5°	689.5	758.7	877.6	938.6	937.9	925.3	872.9	794.3	727.5	676.2	588.2
34°	645.3	718.8	835.4	896.0	890.5	883.1	831.5	752.5	685.2	635.2	549.9
34.5°	603.1	678.6	795.1	853.4	843.6	838.9	792.8	711.4	644.1	594.1	511.6
35°	563.2	639.1	754.4	809.2	796.7	795.9	752.5	671.9	603.1	553.0	475.2
35.5°	524.9	601.5	716.1	765.4	751.3	754.0	714.2	633.6	564.0	513.1	440.0
36°	487.7	566.3	677.8	722.0	707.1	711.8	674.7	597.6	526.0	473.6	406.0
36.5°	451.3	531.1	639.5	680.9	663.3	669.2	634.8	562.0	489.7	436.1	372.3
37°	416.9	495.5	600.0	640.2	621.5	627.3	594.1	527.2	452.5	399.7	338.7
37.5°	384.5	461.5	561.2	601.1	581.6	586.3	553.8	492.4	419.3	368.0	305.1
38°	352.8	427.1	521.7	562.4	542.9	546.4	514.3	458.8	386.8	336.7	271.8
38.5°	322.3	393.4	483.8	522.9	505.3	506.5	476.0	425.1	357.5	305.1	240.9
39°	294.1	360.6	448.2	485.7	468.5	468.5	438.4	391.9	328.1	273.8	212.4
39.5°	267.1	328.9	413.8	448.6	432.6	431.0	403.6	360.6	298.8	248.0	186.2
40°	241.7	298.8	382.1	411.8	397.4	395.4	372.7	329.7	269.5	221.4	163.1
40.5°	217.8	269.9	350.4	375.8	365.7	361.8	341.8	298.8	243.3	197.1	142.8
41°	195.2	242.5	320.7	340.3	334.0	328.5	310.9	267.9	219.4	174.4	125.2
41.5°	174.8	217.5	291.4	307.0	302.3	295.3	280.0	240.5	196.3	153.3	109.9
42°	155.7	194.0	262.4	275.3	270.6	261.6	249.1	215.1	175.2	134.1	97.4
42.5°	138.1	172.1	234.3	246.0	243.7	232.7	221.0	190.5	155.7	117.7	86.4
43°	124.0	151.4	206.1	218.2	216.7	205.3	193.6	167.8	137.7	102.9	75.9
43.5°	110.3	134.1	179.9	192.4	192.4	180.3	168.2	147.4	120.9	90.0	66.9



TEST NUMBER: P776276

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	68.8	88.4	116.9	130.2	124.8	117.3	106.0	94.6	78.6	59.4	44.6
45.5°	59.1	73.5	100.9	114.2	105.6	100.5	89.6	81.0	67.3	51.2	39.9
46°	50.1	62.2	85.3	98.2	89.2	85.3	75.9	68.1	56.7	43.8	35.6
46.5°	41.8	52.0	69.2	82.1	74.3	72.0	63.7	57.5	47.7	39.5	30.9
47°	35.2	43.0	58.3	66.5	61.4	59.8	53.2	47.7	42.6	34.8	26.6
47.5°	29.3	35.6	48.1	55.1	50.5	49.7	48.1	42.6	37.5	30.5	21.9
48°	25.4	29.3	39.9	45.4	45.0	44.2	43.0	37.5	32.5	26.2	20.3
48.5°	23.1	25.4	32.9	36.8	39.1	39.1	37.9	32.9	27.4	21.9	19.6
49°	21.9	23.1	27.8	30.1	33.6	33.6	32.9	27.8	22.3	20.7	18.8
49.5°	20.7	21.9	24.6	25.8	28.2	28.2	27.4	23.1	21.1	19.6	18.0
50°	19.9	20.7	22.7	23.5	22.7	23.1	22.3	21.5	20.3	18.8	16.8
50.5°	18.8	19.9	21.5	21.9	21.5	21.9	21.5	20.7	19.2	18.0	16.0
51°	18.0	18.8	20.7	21.1	20.7	20.7	20.3	19.6	18.4	16.8	14.9
51.5°	16.8	18.0	19.6	19.9	19.6	19.6	19.2	18.4	17.2	16.0	14.1
52°	16.0	16.8	18.8	19.2	18.8	18.8	18.4	17.2	16.0	14.9	13.3
52.5°	14.9	15.6	17.6	18.0	17.6	17.6	17.2	16.4	15.3	14.1	12.5
53°	14.1	14.9	16.4	16.8	16.4	16.4	16.0	15.3	14.1	13.3	11.7
53.5°	13.3	13.7	15.3	15.6	15.3	15.3	14.9	14.5	13.3	12.5	11.0
54°	12.5	12.9	14.5	14.9	14.5	14.5	14.1	13.3	12.5	11.7	10.6
54.5°	11.7	12.1	13.7	14.1	13.3	13.3	13.3	12.5	11.7	11.0	9.8
55°	11.0	11.7	12.5	12.9	12.5	12.5	12.5	11.7	11.0	10.6	9.4
55.5°	10.2	11.0	11.7	12.1	11.7	11.7	11.7	11.0	10.6	9.8	8.6
56°	9.8	10.2	11.0	11.3	11.0	11.0	11.0	10.6	9.8	9.4	8.2
56.5°	9.0	9.4	10.6	10.6	10.6	10.6	10.2	9.8	9.4	8.6	7.8
57°	8.6	9.0	9.8	10.2	9.8	9.8	9.8	9.4	8.6	8.2	7.4
57.5°	7.8	8.2	9.0	9.4	9.0	9.0	9.0	8.6	8.2	7.8	7.0
58°	7.4	7.8	8.6	9.0	8.6	8.6	8.6	8.2	7.8	7.4	6.6
58.5°	7.0	7.4	8.2	8.2	8.2	8.2	7.8	7.8	7.4	7.0	6.3
59°	6.6	7.0	7.4	7.8	7.4	7.4	7.4	7.4	7.0	6.6	5.9
59.5°	6.3	6.6	7.0	7.4	7.0	7.0	7.0	6.6	6.6	6.3	5.5
60°	5.9	6.3	6.6	7.0	6.6	6.6	6.6	6.3	6.3	5.9	5.1
60.5°	5.5	5.9	6.3	6.6	6.3	6.3	6.3	5.9	5.9	5.5	5.1
61°	5.5	5.5	5.9	6.3	5.9	5.9	5.9	5.9	5.5	5.1	4.7
61.5°	5.1	5.1	5.5	5.9	5.5	5.5	5.5	5.5	5.1	4.7	4.3
62°	4.7	4.7	5.5	5.5	5.5	5.5	5.1	5.1	4.7	4.7	4.3
62.5°	4.3	4.7	5.1	5.1	5.1	5.1	5.1	4.7	4.7	4.3	3.9
63°	4.3	4.3	4.7	4.7	4.7	4.7	4.7	4.7	4.3	4.3	3.9
63.5°	3.9	3.9	4.3	4.7	4.3	4.3	4.3	4.3	3.9	3.9	3.5
64°	3.9	3.9	4.3	4.3	4.3	4.3	4.3	3.9	3.9	3.5	3.5
64.5°	3.5	3.5	3.9	3.9	3.9	3.9	3.9	3.9	3.5	3.5	3.1
65°	3.5	3.5	3.9	3.9	3.5	3.5	3.5	3.5	3.5	3.1	3.1
65.5°	3.1	3.1	3.5	3.5	3.5	3.5	3.5	3.5	3.1	3.1	2.7
66°	3.1	3.1	3.1	3.5	3.1	3.1	3.1	3.1	3.1	2.7	2.7



TEST NUMBER: P776276

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	2.3	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.3	2.3
68°	2.3	2.3	2.7	2.7	2.7	2.7	2.7	2.3	2.3	2.3	2.0
68.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.0
69°	2.0	2.0	2.3	2.3	2.3	2.3	2.3	2.3	2.0	2.0	2.0
69.5°	2.0	2.0	2.3	2.3	2.3	2.3	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: P776276

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-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: P776276

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2090.8	2090.8	2090.8	2090.8	2090.8	2090.8
0.5°	2085.7	2090.1	2088.9	2088.9	2089.7	2091.2
1°	2082.6	2087.3	2086.5	2086.5	2088.5	2090.4
1.5°	2079.5	2084.2	2083.4	2084.2	2086.5	2089.7
2°	2075.6	2080.3	2079.9	2081.1	2084.2	2088.1
2.5°	2071.3	2076.4	2076.0	2077.5	2081.4	2086.1
3°	2067.0	2072.1	2071.7	2074.0	2078.3	2083.8
3.5°	2061.9	2067.0	2067.0	2069.7	2075.2	2081.4
4°	2056.4	2061.9	2061.9	2065.0	2070.9	2078.3
4.5°	2050.9	2056.0	2056.4	2059.9	2066.6	2074.8
5°	2044.3	2050.2	2050.5	2054.9	2061.9	2070.9
5.5°	2038.0	2043.5	2043.9	2049.0	2057.2	2066.6
6°	2030.6	2036.5	2037.3	2042.7	2051.3	2061.9
6.5°	2023.6	2029.0	2030.2	2035.7	2045.5	2056.8
7°	2015.4	2021.2	2022.4	2029.0	2039.2	2051.7
7.5°	2006.7	2013.0	2014.6	2021.2	2032.2	2045.5
8°	1998.1	2004.0	2006.0	2013.0	2025.1	2039.2
8.5°	1988.8	1995.0	1997.0	2004.4	2017.3	2032.2
9°	1979.0	1985.2	1987.6	1995.8	2009.1	2025.1
9.5°	1969.2	1975.5	1977.8	1986.0	2000.5	2017.3
10°	1958.2	1964.9	1967.2	1976.6	1991.5	2009.1
10.5°	1947.3	1953.6	1956.3	1966.1	1981.7	2000.1
11°	1934.8	1941.8	1945.0	1954.7	1971.2	1991.5
11.5°	1922.3	1928.9	1932.0	1942.6	1960.2	1981.7
12°	1909.0	1916.0	1918.7	1930.1	1948.5	1971.2
12.5°	1894.5	1901.5	1904.3	1915.6	1935.6	1959.8
13°	1879.6	1886.3	1889.0	1901.5	1922.7	1947.7
13.5°	1864.0	1871.0	1874.2	1886.7	1908.2	1934.8
14°	1847.6	1855.0	1858.1	1871.0	1893.7	1921.5
14.5°	1831.9	1839.0	1842.1	1855.8	1878.5	1907.4
15°	1817.5	1823.7	1826.8	1839.7	1863.6	1892.9
15.5°	1803.8	1809.6	1813.2	1825.7	1848.7	1878.5
16°	1790.1	1796.3	1799.9	1812.4	1835.4	1864.8
16.5°	1776.4	1783.0	1786.2	1799.5	1822.9	1852.3
17°	1763.1	1769.7	1772.9	1786.6	1810.4	1839.4
17.5°	1748.6	1755.7	1759.2	1773.6	1797.5	1827.2
18°	1729.8	1739.6	1743.5	1759.6	1784.6	1814.7
18.5°	1708.7	1718.1	1723.2	1743.1	1769.7	1801.4
19°	1684.5	1694.3	1701.3	1723.2	1752.1	1785.8
19.5°	1656.7	1665.7	1674.7	1700.1	1731.8	1767.8
20°	1625.4	1632.9	1645.0	1672.4	1708.3	1747.8
20.5°	1591.4	1598.0	1611.7	1641.8	1681.0	1724.8
21°	1555.4	1561.7	1576.1	1607.0	1650.5	1699.7

TEST NUMBER: P776276

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	1433.4	1453.3	1458.0	1485.8	1541.3	1613.3
23°	1390.8	1417.4	1417.4	1443.2	1500.3	1582.0
23.5°	1347.7	1378.2	1375.9	1400.9	1461.2	1549.9
24°	1306.7	1337.2	1332.5	1359.1	1422.0	1514.3
24.5°	1264.0	1293.8	1289.1	1320.0	1384.5	1477.2
25°	1222.6	1248.0	1246.4	1279.3	1348.1	1438.5
25.5°	1182.3	1203.4	1203.4	1240.2	1311.8	1397.4
26°	1142.4	1156.9	1159.2	1200.7	1274.6	1355.6
26.5°	1101.0	1112.3	1115.8	1162.0	1236.7	1312.1
27°	1059.9	1065.4	1073.6	1120.5	1196.8	1268.7
27.5°	1018.0	1019.6	1031.3	1078.7	1155.3	1225.7
28°	977.4	974.6	988.7	1035.2	1110.7	1183.1
28.5°	935.9	928.9	948.4	991.8	1066.1	1140.1
29°	894.5	882.7	906.2	948.8	1018.8	1095.9
29.5°	853.0	839.7	865.1	908.1	975.4	1052.1
30°	811.9	797.5	822.9	866.7	930.0	1007.9
30.5°	770.1	755.6	781.0	826.4	887.8	963.7
31°	729.4	715.7	736.8	786.5	845.6	917.5
31.5°	688.3	678.2	694.6	749.0	804.5	872.2
32°	648.8	640.6	654.3	711.0	763.8	826.4
32.5°	609.3	604.3	615.6	673.1	725.1	780.6
33°	572.2	567.5	578.4	633.6	684.8	734.9
33.5°	535.0	530.3	542.9	594.9	643.8	689.5
34°	499.4	495.5	507.7	556.5	601.9	645.3
34.5°	465.4	461.9	474.0	517.8	561.6	603.1
35°	431.8	429.8	440.4	480.7	520.6	563.2
35.5°	398.9	399.3	409.5	444.7	480.7	524.9
36°	370.4	371.5	378.2	409.9	442.3	487.7
36.5°	342.2	343.8	348.1	376.2	406.0	451.3
37°	313.7	318.0	319.5	343.4	371.5	416.9
37.5°	285.5	292.5	292.5	311.3	338.7	384.5
38°	257.0	267.5	267.5	280.0	307.4	352.8
38.5°	233.9	244.4	243.3	250.3	277.3	322.3
39°	210.8	222.5	221.0	222.5	249.1	294.1
39.5°	189.3	201.8	199.9	196.3	222.5	267.1
40°	168.6	182.6	179.9	171.7	196.3	241.7
40.5°	150.6	163.9	160.7	150.6	173.3	217.8
41°	132.6	147.1	142.8	133.4	151.7	195.2
41.5°	116.9	133.0	129.1	120.1	133.0	174.8
42°	102.5	119.3	115.4	106.8	119.7	155.7
42.5°	90.0	105.6	102.1	93.9	106.4	138.1
43°	78.6	91.9	88.4	80.6	93.1	124.0
43.5°	68.4	78.2	74.7	71.2	79.8	110.3



TEST NUMBER: P776276

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
45°	45.4	49.3	47.7	47.7	53.2	68.8
45.5°	39.9	41.5	40.3	41.5	46.5	59.1
46°	34.0	34.4	34.4	35.6	39.9	50.1
46.5°	28.6	28.6	28.9	30.5	34.0	41.8
47°	23.1	24.6	24.6	26.2	28.9	35.2
47.5°	21.1	22.3	22.3	23.5	25.4	29.3
48°	19.9	20.7	21.1	21.9	23.1	25.4
48.5°	19.2	19.9	19.9	20.7	21.5	23.1
49°	18.4	19.2	19.2	19.9	20.7	21.9
49.5°	17.2	18.0	18.4	18.8	19.9	20.7
50°	16.4	17.2	17.2	18.0	18.8	19.9
50.5°	15.3	16.0	16.4	16.8	18.0	18.8
51°	14.5	15.3	15.3	16.0	16.8	18.0
51.5°	13.7	14.5	14.5	14.9	16.0	16.8
52°	12.9	13.3	13.7	14.1	14.9	16.0
52.5°	12.1	12.5	12.9	13.3	14.1	14.9
53°	11.3	11.7	12.1	12.5	13.3	14.1
53.5°	11.0	11.3	11.3	11.7	12.5	13.3
54°	10.2	10.6	10.6	11.3	11.7	12.5
54.5°	9.8	9.8	10.2	10.6	11.0	11.7
55°	9.0	9.4	9.4	9.8	10.6	11.0
55.5°	8.6	9.0	9.0	9.4	9.8	10.2
56°	8.2	8.2	8.6	9.0	9.4	9.8
56.5°	7.4	7.8	7.8	8.2	8.6	9.0
57°	7.0	7.4	7.4	7.8	8.2	8.6
57.5°	6.6	7.0	7.0	7.4	7.8	7.8
58°	6.3	6.6	6.6	7.0	7.4	7.4
58.5°	6.3	6.3	6.3	6.6	7.0	7.0
59°	5.9	5.9	5.9	6.3	6.6	6.6
59.5°	5.5	5.5	5.9	5.9	6.3	6.3
60°	5.1	5.5	5.5	5.5	5.9	5.9
60.5°	4.7	5.1	5.1	5.1	5.5	5.5
61°	4.7	4.7	4.7	5.1	5.1	5.5
61.5°	4.3	4.3	4.7	4.7	4.7	5.1
62°	4.3	4.3	4.3	4.3	4.7	4.7
62.5°	3.9	3.9	3.9	4.3	4.3	4.3
63°	3.5	3.9	3.9	3.9	3.9	4.3
63.5°	3.5	3.5	3.5	3.9	3.9	3.9
64°	3.1	3.5	3.5	3.5	3.5	3.9
64.5°	3.1	3.1	3.1	3.1	3.5	3.5
65°	3.1	3.1	3.1	3.1	3.1	3.5
65.5°	2.7	2.7	2.7	3.1	3.1	3.1
66°	2.7	2.7	2.7	2.7	2.7	3.1



TEST NUMBER: P776276

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-4000lm-3000K

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	2.3	2.3	2.3	2.3	2.3	2.3
68°	2.0	2.3	2.3	2.3	2.3	2.3
68.5°	2.0	2.0	2.0	2.0	2.0	2.3
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: P776276
CATALOG NUMBER: HCDJBL3040CSD-HCD42TRMB-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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— 0°-180° - - 45°-225° - - - - 90°-270° - · - · 135°-315°

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21.5°	1672.4	1730.2	1786.9	1801.0	1794.0	1788.5	1772.1	1736.9	1684.5	1632.5	1544.5
22°	1643.0	1706.0	1769.0	1782.6	1772.1	1767.8	1754.1	1715.4	1657.1	1599.2	1503.0



44°	96.6	118.9	155.3	168.6	167.8	156.8	145.1	127.9	105.2	78.6	59.1
44.5°	82.5	103.6	133.0	146.3	145.5	136.1	124.4	110.3	91.1	68.4	51.6



66.5°	2.7	2.7	3.1	3.1	3.1	3.1	3.1	3.1	2.7	2.7	2.3
67°	2.7	2.7	3.1	3.1	2.7	2.7	2.7	2.7	2.7	2.7	2.3



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°	1517.1	1525.3	1538.6	1568.7	1616.8	1672.4
22°	1476.8	1488.5	1499.1	1528.4	1579.7	1643.0



44°	59.4	67.7	64.5	62.6	70.0	96.6
44.5°	50.8	58.3	55.9	55.1	61.4	82.5



66.5°	2.3	2.7	2.7	2.7	2.7	2.7
67°	2.3	2.3	2.3	2.3	2.7	2.7

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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)