

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: LUMARK

Report Number: P145452

Luminaire Tested: **LDRL-SL4-E04-E-7060**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P145452  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (P33703)  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: LUMARK  
Catalog Number: LDRL-SL4-E04-E-7060  
Description: RL LED ROADWAY LARGE CUTOFF COBRAHEAD LUMINAIRE  
(4) LIGHTBARS WITH AccuLED OPTICS - TYPE 4 W/ SPILL LIGHT CONTROL  
Light Source: (84) 5700K CCT, 70 CRI LEDs  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11829.1 lumens  
Efficiency: N/A  
Efficacy: 121.7 lumens/watt  
Luminous Opening: Rectangular (W 0.67' x L: 1' x H: 0')  
IES Classification: Type IV - Short - Semi-Cutoff  
BUG Rating: B2 - U0 - G2

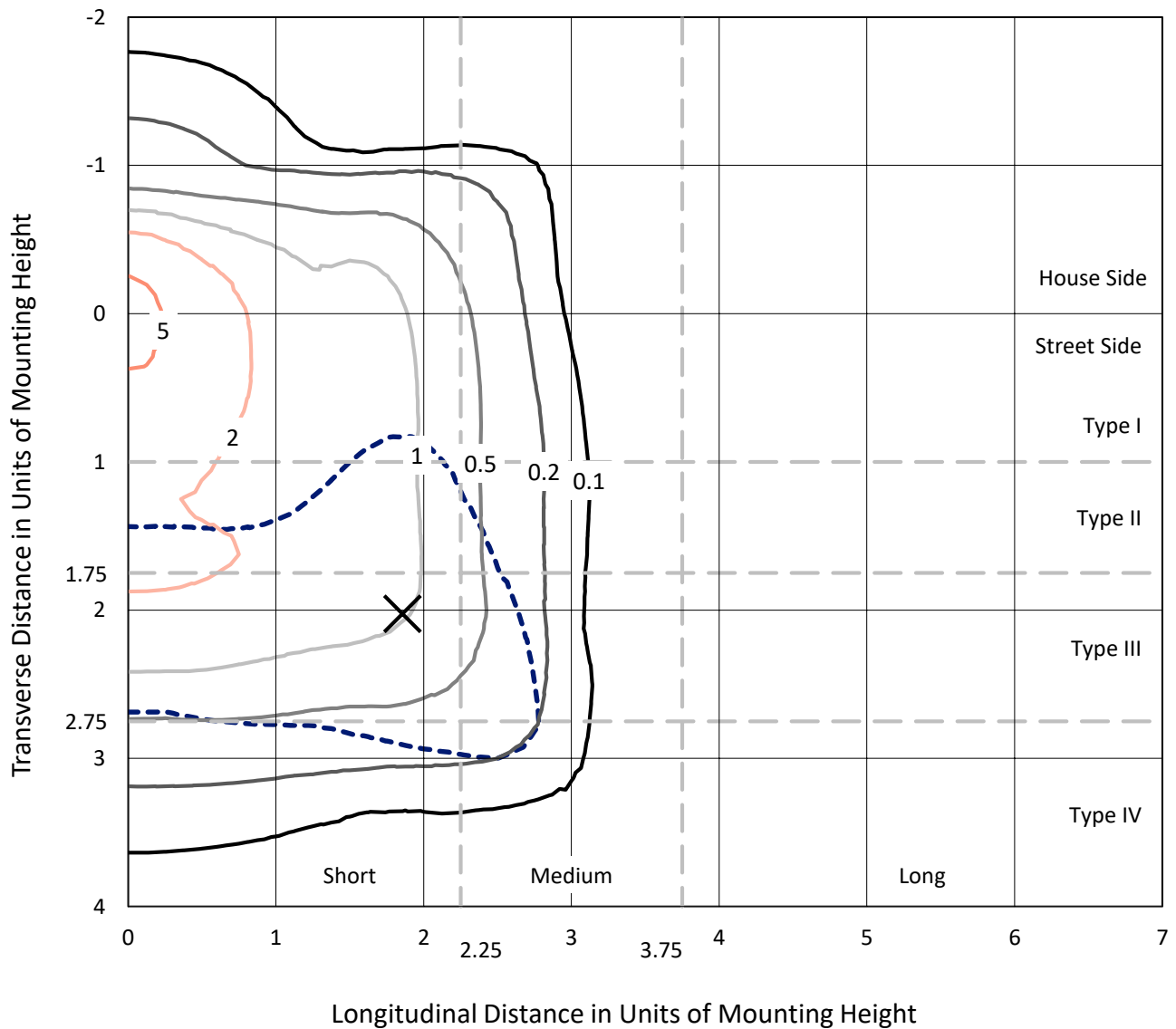
Input Watts (W): 97.2  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Iso-Footcandle Lines of Horizontal Illumination

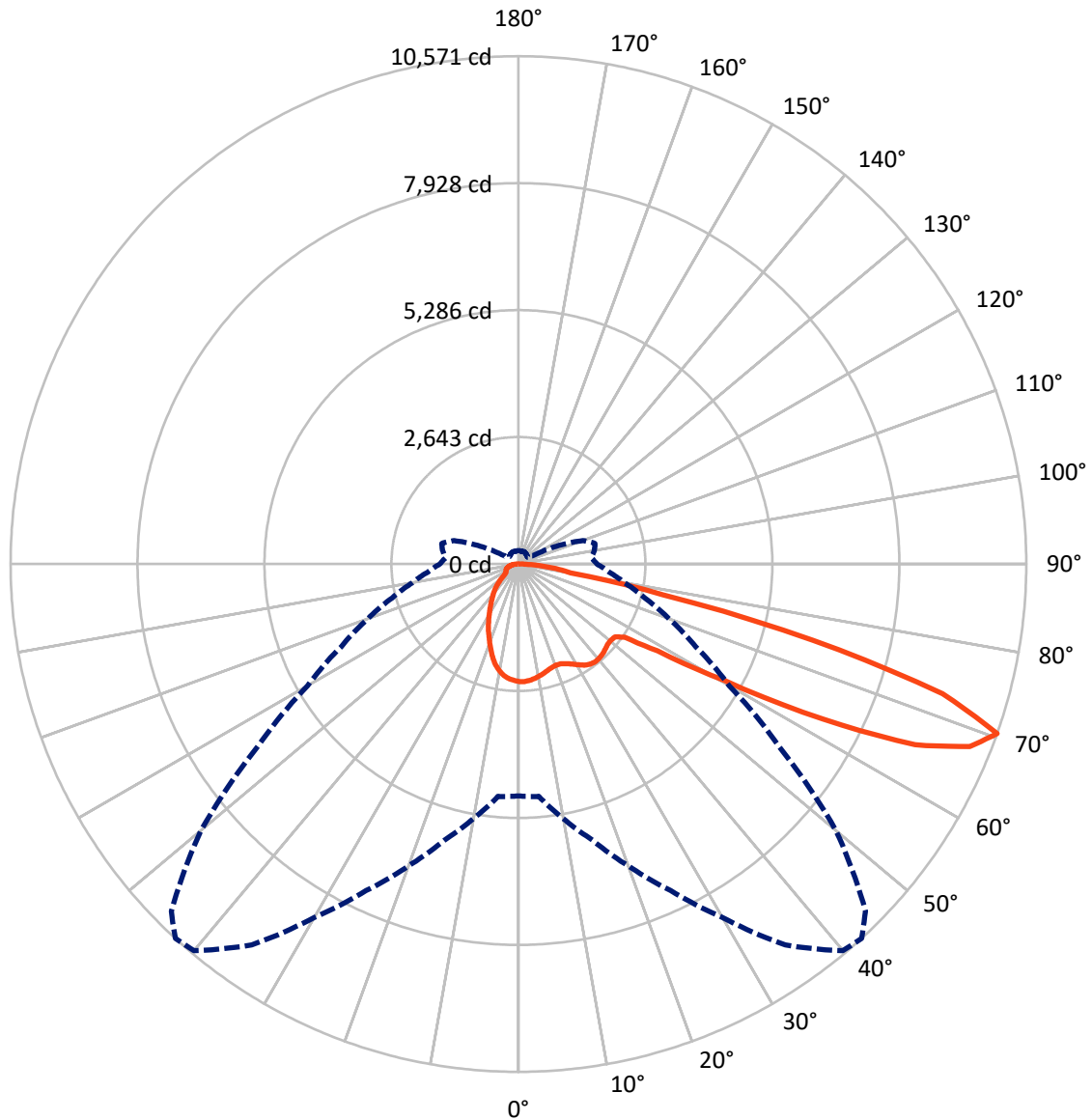
× Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 6.1 fc  
 Type IV - Short - Semi-Cutoff

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### Luminous Intensity Polar Plot



— Vertical Plane Through 42.5-Deg Lateral    - - - Horizontal Cone Through 70-Deg Vertical

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**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	2555.3	0.0	2555.3
	% Fixture	21.6	0.0	21.6
<b>Street Side</b>	Lumens	9273.8	0.0	9273.8
	% Fixture	78.4	0.0	78.4
<b>Total</b>	Lumens	11829.1	0.0	11829.1
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	227.6	1.9
10°-20°	613.1	5.2
20°-30°	894.4	7.6
30°-40°	1140.7	9.6
40°-50°	1331.4	11.3
50°-60°	2036.1	17.2
60°-70°	3690.8	31.2
70°-80°	1641.1	13.9
80°-90°	253.9	2.1
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°-90°	11829.1	100.0
0°-180°	11829.1	100.0



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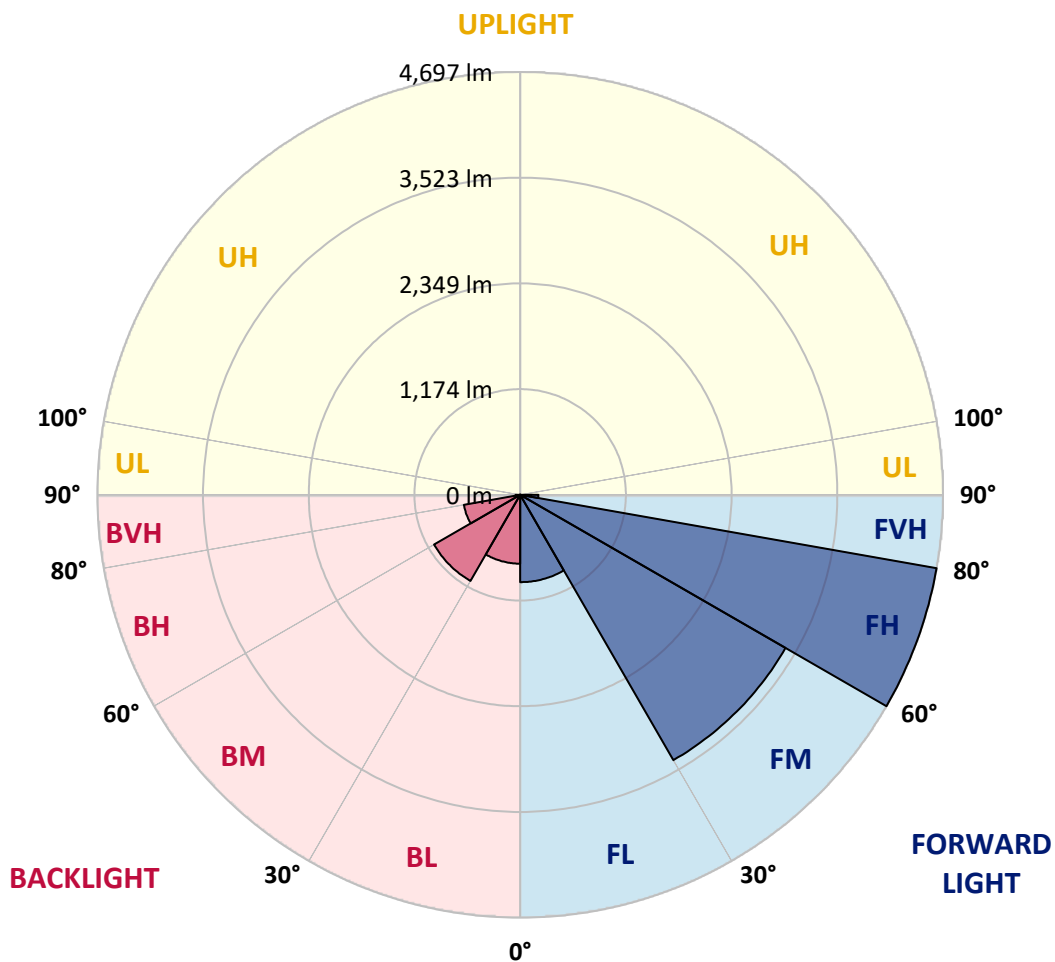
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	970.3	8.2			
FM (30°-60°)	3403.5	28.8			
FH (60°-80°)	4697.1	39.7			G2/5000
FVH (80°-90°)	202.9	1.7			G2/225
BL (0°-30°)	764.8	6.5	B2/1000		
BM (30°-60°)	1104.6	9.3	B2/2500		
BH (60°-80°)	634.8	5.4	B2/1000		G2/1000
BVH (80°-90°)	51.1	0.4			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B2-U0-G2**

Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	42.5°	45°
0°	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2
2.5°	2457.7	2455.3	2456.9	2458.5	2458.5	2459.4	2452.0	2452.8	2449.5	2450.3	2451.2
5°	2448.7	2446.2	2447.9	2447.9	2447.9	2447.1	2437.2	2436.4	2432.3	2432.3	2430.6
7.5°	2431.5	2422.4	2427.4	2428.2	2426.5	2422.4	2416.7	2410.9	2408.5	2408.5	2402.7
10°	2405.2	2395.3	2397.8	2399.4	2398.6	2390.4	2388.0	2382.2	2375.6	2373.2	2366.6
12.5°	2371.5	2365.0	2368.3	2367.4	2367.4	2360.0	2355.9	2347.7	2339.5	2335.4	2327.2
15°	2350.2	2342.0	2345.3	2345.3	2342.0	2334.6	2328.8	2314.1	2300.1	2295.2	2284.5
17.5°	2363.3	2355.1	2358.4	2355.9	2350.2	2334.6	2319.8	2296.0	2273.8	2260.7	2246.8
20°	2415.9	2407.7	2410.1	2408.5	2400.3	2374.8	2347.7	2306.7	2265.6	2245.9	2224.6
22.5°	2499.6	2493.0	2497.1	2494.7	2481.5	2448.7	2408.5	2349.4	2287.8	2258.3	2227.9
25°	2623.5	2621.9	2628.5	2621.1	2602.2	2553.0	2494.7	2415.0	2334.6	2297.7	2255.0
27.5°	2772.9	2759.0	2768.8	2762.3	2749.1	2686.8	2607.9	2507.0	2404.4	2355.9	2305.0
30°	2907.6	2895.3	2913.3	2910.0	2890.3	2826.3	2727.0	2608.8	2493.0	2431.5	2373.2
32.5°	3063.5	3047.9	3061.9	3061.9	3032.3	2946.2	2832.9	2697.4	2575.9	2510.3	2440.5
35°	3226.9	3210.5	3223.6	3219.5	3167.0	3052.9	2910.9	2763.9	2630.1	2562.8	2491.4
37.5°	3378.8	3376.3	3379.6	3352.5	3279.4	3133.3	2963.4	2799.2	2657.2	2586.6	2511.9
40°	3530.6	3524.9	3510.9	3463.3	3356.6	3180.9	2990.5	2811.5	2658.8	2585.0	2509.4
42.5°	3625.8	3615.2	3591.4	3526.5	3392.7	3192.4	2982.3	2792.6	2639.1	2563.6	2489.7
45°	3658.7	3648.0	3619.3	3546.2	3393.5	3174.4	2950.3	2754.9	2602.2	2533.2	2458.5
47.5°	3631.6	3625.0	3598.8	3525.7	3367.3	3140.7	2910.0	2717.1	2566.9	2499.6	2429.8
50°	3585.6	3581.5	3558.5	3491.2	3342.6	3120.2	2891.2	2699.1	2557.1	2494.7	2429.0
52.5°	3700.5	3688.2	3647.2	3567.6	3394.4	3157.1	2920.7	2726.2	2580.0	2516.8	2449.5
55°	5113.3	5022.2	4818.6	4436.9	3902.5	3487.9	3139.1	2904.3	2746.7	2685.1	2621.1
57.5°	6724.7	6629.5	6544.9	6253.5	5619.0	4835.8	4131.5	3719.4	3437.0	3410.0	3384.5
60°	7345.3	7375.6	7368.3	7259.9	6934.8	6563.0	5973.6	5486.8	4947.5	4925.3	4957.3
62.5°	7773.0	7798.4	7801.7	7768.8	7663.0	7539.0	7415.9	7259.9	7157.3	7113.0	6826.5
65°	7949.4	7986.4	8067.7	8128.4	8145.6	8188.3	8300.0	8724.4	9078.2	9075.7	8740.0
67.5°	7275.5	7319.8	7627.7	7929.7	8183.4	8477.3	8929.6	9619.9	10152.7	10136.3	9861.3
70°	4828.4	4856.4	5379.3	5948.1	6686.1	7502.1	8490.4	9680.7	10506.5	10571.3	10216.7
72.5°	2961.8	3025.8	3196.5	3427.2	3821.2	4577.3	6046.6	8080.8	9292.4	9231.7	8949.3
75°	1999.7	2003.0	1998.0	2022.7	2044.8	2197.5	2789.4	4443.4	6294.5	6327.4	6205.9
77.5°	1366.8	1384.8	1394.7	1388.1	1410.3	1403.7	1438.2	1522.7	2412.6	3079.1	2829.6
80°	1194.4	1201.8	1212.4	1196.8	1155.8	1132.8	1164.8	1134.5	1068.8	1104.1	1057.3
82.5°	756.0	778.2	780.7	834.8	915.3	918.6	959.6	929.2	845.5	790.5	723.2
85°	543.4	551.6	566.4	569.7	541.8	518.0	532.8	507.3	457.2	427.7	378.4
87.5°	316.9	325.1	339.8	330.8	302.9	268.4	242.2	208.5	165.0	154.3	136.3
90°	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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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°
0°	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2
2.5°	2452.0	2447.9	2444.6	2443.0	2446.2	2443.0	2439.7	2438.0	2434.7	2435.6	2431.5
5°	2429.0	2423.3	2418.3	2414.2	2417.5	2411.8	2406.8	2403.5	2399.4	2398.6	2394.5
7.5°	2397.0	2388.0	2381.4	2374.0	2365.8	2360.9	2355.1	2349.4	2340.3	2339.5	2337.9
10°	2355.1	2347.7	2334.6	2323.1	2311.6	2299.3	2287.0	2278.0	2267.3	2263.2	2257.4
12.5°	2313.3	2298.5	2282.9	2264.8	2250.9	2231.2	2214.7	2197.5	2181.9	2172.1	2161.4
15°	2264.0	2248.4	2226.2	2209.0	2189.3	2167.1	2145.8	2120.3	2094.9	2079.3	2064.5
17.5°	2221.3	2201.6	2183.6	2158.9	2139.2	2113.8	2081.8	2054.7	2024.3	1998.9	1971.8
20°	2188.5	2166.3	2145.0	2122.8	2099.0	2070.3	2035.0	1996.4	1957.8	1921.7	1881.5
22.5°	2175.3	2140.0	2116.2	2095.7	2071.1	2038.3	1998.9	1951.2	1903.6	1857.7	1810.9
25°	2186.8	2134.3	2097.4	2074.4	2052.2	2018.6	1974.2	1920.0	1864.2	1805.9	1750.1
27.5°	2218.0	2151.5	2099.0	2062.9	2037.4	2004.6	1955.3	1898.7	1835.5	1769.8	1709.9
30°	2263.2	2180.3	2114.6	2062.9	2025.1	1987.4	1934.0	1870.0	1803.5	1734.5	1667.2
32.5°	2312.4	2212.3	2133.5	2065.3	2007.1	1959.5	1903.6	1841.2	1770.6	1697.6	1625.4
35°	2349.4	2235.3	2141.7	2056.3	1981.6	1921.7	1861.8	1801.0	1732.1	1658.2	1585.9
37.5°	2365.0	2244.3	2140.0	2037.4	1946.3	1880.6	1818.3	1757.5	1691.0	1621.2	1554.8
40°	2365.8	2244.3	2130.2	2012.0	1909.4	1838.0	1772.3	1715.6	1653.3	1593.3	1534.2
42.5°	2350.2	2232.8	2112.1	1988.2	1882.3	1801.8	1734.5	1676.2	1626.2	1572.8	1522.7
45°	2322.3	2209.8	2095.7	1975.0	1872.4	1792.8	1720.6	1665.6	1620.4	1572.8	1529.3
47.5°	2300.9	2196.7	2096.5	1993.9	1896.2	1814.2	1736.2	1677.9	1639.3	1601.5	1570.4
50°	2305.0	2201.6	2106.4	2008.7	1912.7	1829.8	1754.2	1704.2	1681.2	1668.9	1661.5
52.5°	2326.4	2221.3	2149.1	2084.2	2053.0	2002.1	1960.3	1922.5	1928.3	1898.7	1860.9
55°	2546.4	2511.1	2594.0	2653.9	2683.5	2735.2	2809.9	2738.5	2728.6	2637.5	2366.6
57.5°	3419.0	3502.7	3630.0	3720.2	3729.3	3713.7	3652.1	3593.0	3497.0	3359.9	2980.6
60°	4882.6	4862.9	4744.7	4586.3	4463.1	4301.4	4138.9	4001.8	3847.5	3637.3	3233.5
62.5°	6421.8	5947.3	5526.2	5167.5	4862.9	4592.8	4347.4	4141.4	3929.6	3627.5	3197.3
65°	7664.6	6751.8	6009.7	5432.6	4979.5	4597.8	4280.9	3996.9	3713.7	3364.0	2947.0
67.5°	8552.8	7104.8	5985.1	5173.2	4537.8	4012.5	3551.1	3227.7	2937.1	2662.1	2474.1
70°	8623.4	6616.3	5063.2	4069.9	3336.9	2719.6	2241.0	1888.0	1635.2	1521.1	1602.4
72.5°	7369.1	4894.9	3366.4	2491.4	1977.5	1536.7	1235.4	987.5	783.9	683.8	697.8
75°	4340.0	2350.2	1516.2	1129.5	922.7	737.2	637.8	538.5	475.3	380.9	304.5
77.5°	1652.4	1022.0	765.1	635.4	453.1	325.9	256.9	221.6	203.6	201.1	190.4
80°	952.2	749.5	524.5	343.1	251.2	212.6	182.2	156.0	145.3	142.8	146.9
82.5°	601.7	467.1	288.1	220.8	183.1	157.6	131.3	114.1	105.1	101.8	107.5
85°	311.1	234.0	175.7	151.0	140.4	128.1	105.1	87.8	87.0	91.1	105.1
87.5°	114.9	100.1	78.8	68.1	73.1	68.1	49.3	42.7	38.6	50.9	73.9
90°	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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**CANDELA DISTRIBUTION (continued):**

	105°	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°
0°	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2	2446.2
2.5°	2431.5	2429.8	2430.6	2429.0	2429.0	2431.5	2428.2	2425.7	2429.8	2429.8	2432.3
5°	2393.7	2395.3	2395.3	2394.5	2396.2	2400.3	2399.4	2399.4	2406.0	2408.5	2411.8
7.5°	2333.8	2336.2	2337.1	2339.5	2340.3	2346.1	2350.2	2355.1	2365.0	2367.4	2374.8
10°	2252.5	2250.9	2256.6	2255.8	2263.2	2268.1	2271.4	2282.1	2296.8	2305.0	2312.4
12.5°	2156.5	2156.5	2159.7	2160.6	2167.1	2173.7	2177.8	2190.9	2203.3	2213.9	2230.3
15°	2054.7	2051.4	2044.0	2043.2	2045.6	2052.2	2061.2	2071.1	2090.0	2105.6	2119.5
17.5°	1948.0	1938.1	1929.1	1917.6	1916.8	1915.9	1920.9	1928.3	1957.8	1973.4	1993.1
20°	1853.6	1832.2	1810.9	1787.1	1773.1	1766.5	1769.0	1778.9	1806.8	1827.3	1847.8
22.5°	1769.0	1737.0	1703.3	1665.6	1642.6	1628.6	1630.3	1634.4	1654.9	1667.2	1677.9
25°	1696.8	1652.4	1605.6	1557.2	1525.2	1503.9	1503.0	1503.0	1494.0	1495.7	1489.9
27.5°	1647.5	1585.9	1526.0	1469.4	1427.5	1406.2	1377.4	1356.9	1338.9	1314.2	1303.6
30°	1599.9	1536.7	1468.6	1406.2	1356.1	1314.2	1260.9	1216.6	1181.3	1147.6	1118.9
32.5°	1557.2	1491.5	1426.7	1358.6	1289.6	1217.4	1147.6	1096.7	1046.6	994.9	960.4
35°	1519.5	1457.9	1393.0	1315.9	1219.0	1124.6	1045.8	976.9	917.7	855.4	805.3
37.5°	1498.1	1442.3	1375.0	1269.9	1148.4	1040.9	953.0	875.9	797.1	722.4	660.8
40°	1487.4	1438.2	1356.1	1223.1	1085.2	970.3	872.6	779.8	687.1	599.2	535.2
42.5°	1485.8	1438.2	1328.2	1175.5	1031.0	907.9	798.7	687.1	574.6	489.2	432.6
45°	1500.6	1436.5	1298.6	1132.8	982.6	852.1	720.7	589.4	473.7	398.9	367.8
47.5°	1543.3	1442.3	1275.7	1096.7	936.6	790.5	632.1	481.0	382.5	348.9	348.1
50°	1612.2	1468.6	1270.7	1070.4	891.5	713.3	527.8	385.0	337.4	335.7	344.8
52.5°	1721.4	1517.8	1283.0	1052.4	837.3	613.2	417.8	332.5	323.4	332.5	344.0
55°	1961.9	1605.6	1299.5	1020.4	749.5	486.0	344.0	315.2	319.3	330.0	340.7
57.5°	2399.4	1787.9	1316.7	948.1	607.5	373.5	309.5	308.7	316.0	325.1	334.9
60°	2676.9	2012.8	1358.6	841.4	458.9	308.7	296.3	304.5	313.6	320.1	328.4
62.5°	2685.9	2071.9	1380.7	727.3	341.5	282.4	284.8	300.4	311.1	313.6	317.7
65°	2512.7	1960.3	1280.6	591.9	283.2	267.6	276.6	290.6	301.3	302.9	306.2
67.5°	2195.0	1728.8	1085.2	446.6	257.8	256.1	266.0	276.6	284.0	290.6	295.5
70°	1653.3	1426.7	872.6	346.4	242.2	240.5	250.4	259.4	266.0	274.2	282.4
72.5°	838.1	987.5	661.6	283.2	220.8	222.5	233.1	241.3	246.3	253.7	261.9
75°	285.7	431.0	418.7	229.0	197.0	203.6	208.5	217.5	224.9	229.8	234.0
77.5°	179.0	187.2	215.9	184.7	174.0	175.7	183.9	192.1	200.3	203.6	205.2
80°	149.4	150.2	151.0	147.8	148.6	153.5	158.4	167.5	175.7	177.3	178.1
82.5°	118.2	126.4	125.6	124.8	128.9	133.8	137.1	140.4	143.7	145.3	147.8
85°	104.3	102.6	103.4	105.9	102.6	99.3	98.5	98.5	103.4	109.2	111.6
87.5°	95.2	81.3	60.7	57.5	57.5	55.8	52.5	52.5	57.5	62.4	64.8
90°	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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**CANDELA DISTRIBUTION (continued):**

	160°	165°	170°	175°	180°
0°	2446.2	2446.2	2446.2	2446.2	2446.2
2.5°	2431.5	2432.3	2431.5	2431.5	2435.6
5°	2413.4	2416.7	2415.0	2417.5	2420.0
7.5°	2376.5	2384.7	2386.3	2392.9	2390.4
10°	2323.1	2328.8	2337.1	2343.6	2341.2
12.5°	2238.6	2252.5	2264.8	2272.2	2270.6
15°	2131.0	2150.7	2167.1	2172.9	2166.3
17.5°	2016.1	2028.4	2048.1	2052.2	2058.8
20°	1870.8	1870.0	1887.2	1887.2	1883.9
22.5°	1681.2	1693.5	1693.5	1682.0	1676.2
25°	1487.4	1491.5	1479.2	1481.7	1466.1
27.5°	1292.9	1282.2	1272.4	1276.5	1265.0
30°	1107.4	1084.4	1074.5	1076.2	1063.9
32.5°	929.2	902.2	892.3	879.2	868.5
35°	767.5	724.8	699.4	692.8	700.2
37.5°	609.1	578.7	548.4	526.2	528.6
40°	481.9	450.7	431.0	421.9	420.3
42.5°	398.1	380.1	376.0	376.8	376.8
45°	361.2	362.0	365.3	368.6	369.4
47.5°	353.8	358.7	364.5	368.6	369.4
50°	353.0	357.9	362.0	366.9	368.6
52.5°	352.2	355.4	357.9	360.4	362.8
55°	348.9	350.5	349.7	351.3	353.8
57.5°	340.7	341.5	339.8	340.7	345.6
60°	333.3	334.1	330.8	334.9	335.7
62.5°	324.2	323.4	321.8	324.2	324.2
65°	311.1	306.2	307.8	310.3	311.1
67.5°	295.5	290.6	290.6	292.2	294.7
70°	275.8	273.4	273.4	276.6	279.9
72.5°	253.7	255.3	260.2	265.1	270.1
75°	235.6	239.7	244.6	256.9	264.3
77.5°	212.6	213.4	217.5	229.8	243.0
80°	180.6	179.8	180.6	182.2	184.7
82.5°	142.8	141.2	136.3	137.9	134.6
85°	105.1	102.6	96.9	92.8	91.9
87.5°	60.7	60.7	58.3	55.0	51.7
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)