

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: P196294

Luminaire Tested: **NAV-AF-04-D-UNV-T2R-1200**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P196294  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24459)  
Test Lab: INNOVATION CENTER P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: LUMARK  
Catalog Number: NAV-AF-04-D-UNV-T2R-1200  
Description: NAVION ROADWAY AND AREA LUMINAIRE  
(4) 70 CRI, 4000K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II  
ROADWAY OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 28689.7 lumens  
Efficiency: N/A  
Efficacy: 111.2 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type II - Short - Semi-Cutoff  
BUG Rating: B3 - U0 - G4

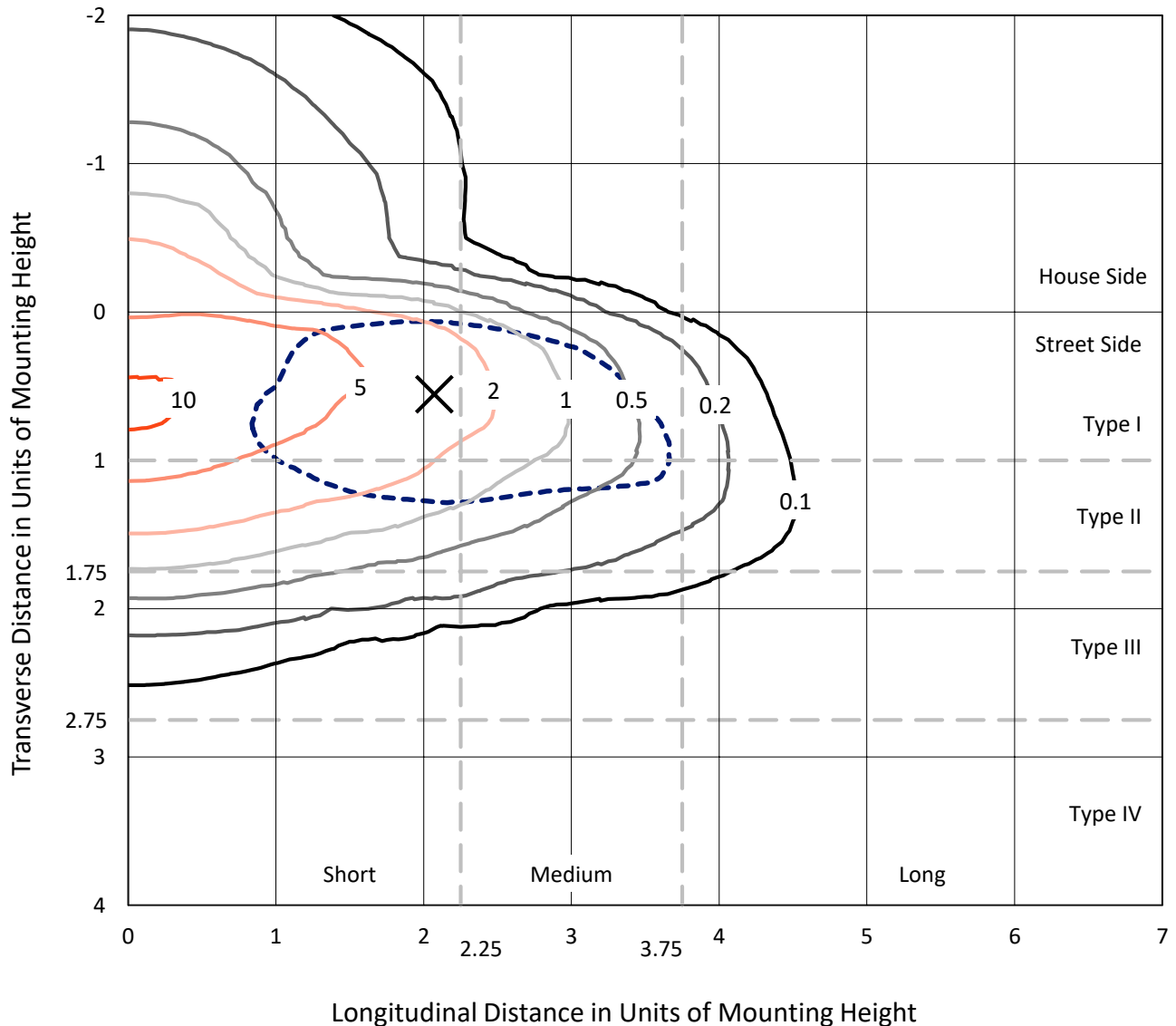
Input Watts (W): 258  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Iso-Footcandle Lines of Horizontal Illumination

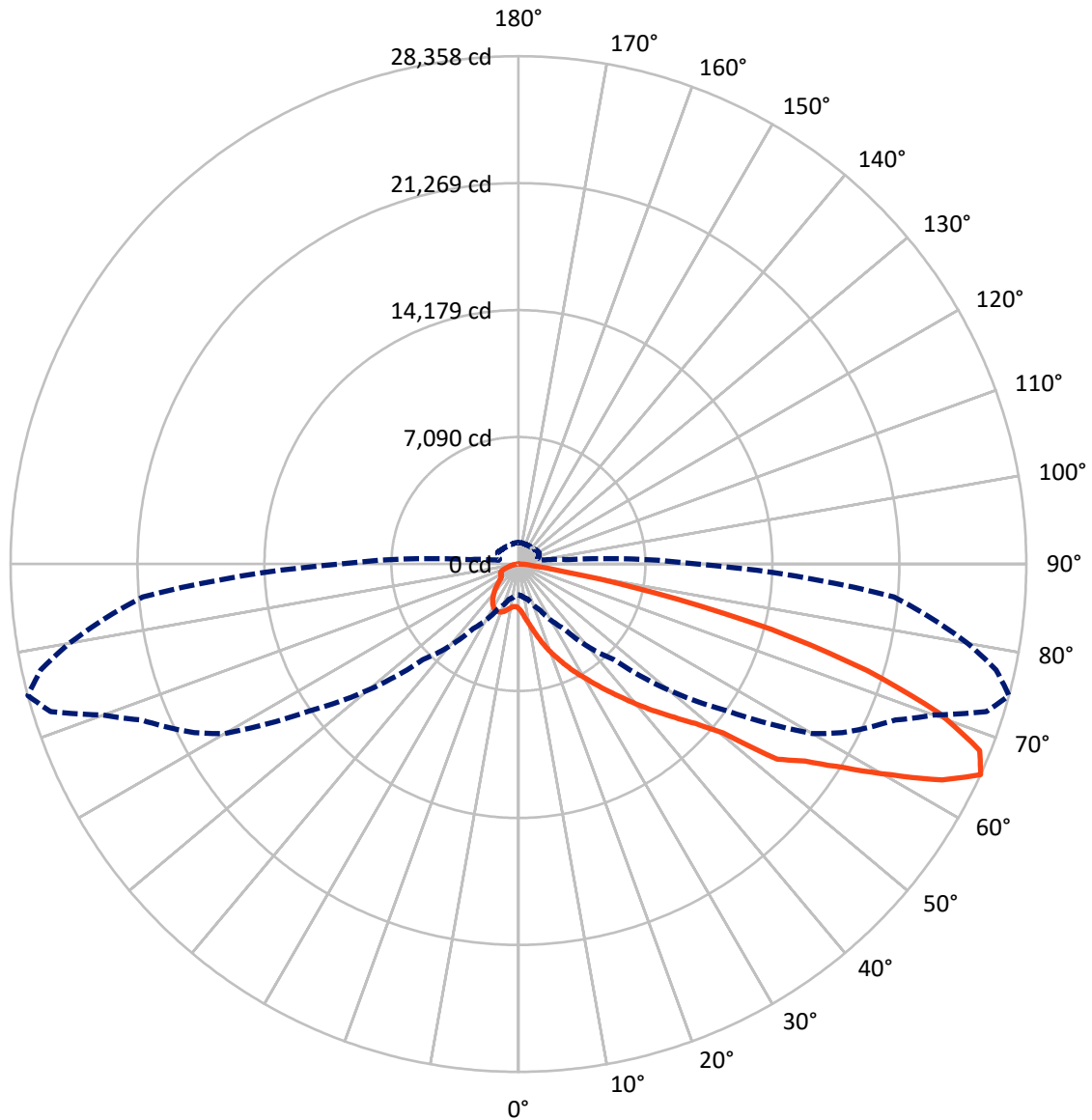
× Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 11.4 fc  
 Type II - Short - Semi-Cutoff

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### Luminous Intensity Polar Plot



— Vertical Plane Through 75-Deg Lateral    - - - Horizontal Cone Through 65-Deg Vertical

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**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	4311.1	0.0	4311.1
	% Fixture	15.0	0.0	15.0
<b>Street Side</b>	Lumens	24378.6	0.0	24378.6
	% Fixture	85.0	0.0	85.0
<b>Total</b>	Lumens	28689.7	0.0	28689.7
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	293.5	1.0
10°-20°	1120.9	3.9
20°-30°	2262.1	7.9
30°-40°	3841.6	13.4
40°-50°	5358.1	18.7
50°-60°	6567.1	22.9
60°-70°	6178.7	21.5
70°-80°	2709.3	9.4
80°-90°	358.5	1.2
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°	28689.7	100.0
0°-180°	28689.7	100.0



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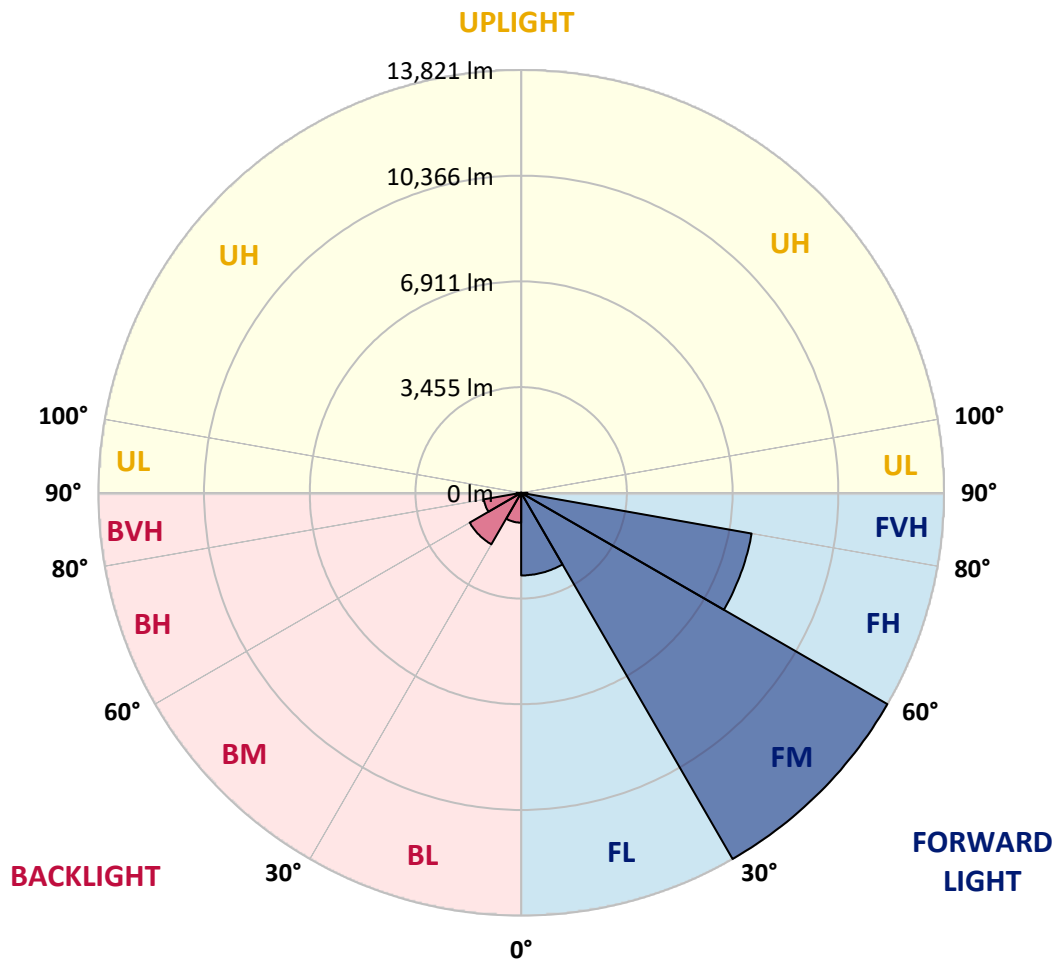
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	2700.5	9.4			
FM (30°-60°)	13821.4	48.2			
FH (60°-80°)	7648.9	26.7			G4/12000
FVH (80°-90°)	207.8	0.7			G2/225
BL (0°-30°)	975.9	3.4	B2/1000		
BM (30°-60°)	1945.4	6.8	B2/2500		
BH (60°-80°)	1239.1	4.3	B3/2500		G3/2500
BVH (80°-90°)	150.7	0.5			G2/225
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B3-U0-G4**

Type II Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	57.5°	60°	62.5°	65°
0°	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8
2.5°	3130.0	3093.5	3097.2	3046.0	2971.3	2889.1	2821.6	2785.1	2754.1	2745.0	2693.8
5°	4093.7	4048.0	4031.7	3914.8	3739.6	3531.5	3325.3	3245.0	3179.3	3139.1	3040.6
7.5°	4882.1	4858.4	4836.5	4728.8	4555.4	4289.0	3956.8	3838.2	3728.7	3608.3	3489.6
10°	5418.7	5409.6	5400.5	5325.7	5181.5	4949.6	4591.9	4462.4	4325.4	4172.2	4017.0
12.5°	5823.9	5823.9	5831.2	5769.1	5681.6	5502.7	5177.8	5057.4	4918.7	4758.1	4581.0
15°	6095.9	6103.1	6141.5	6159.7	6114.1	5999.1	5714.4	5608.5	5477.1	5318.3	5143.1
17.5°	6276.5	6291.1	6347.7	6408.0	6466.3	6426.2	6214.4	6115.9	5997.3	5851.3	5687.0
20°	6696.3	6678.0	6679.9	6661.7	6747.4	6778.4	6661.7	6579.5	6484.6	6351.3	6201.6
22.5°	7577.8	7543.1	7453.7	7225.6	7121.6	7110.6	7041.3	6997.4	6924.5	6840.5	6690.8
25°	8727.6	8687.5	8510.4	8134.5	7824.2	7537.6	7409.9	7382.5	7335.1	7278.5	7170.8
27.5°	9915.8	9872.0	9643.9	9169.3	8764.1	8185.6	7787.7	7751.2	7707.4	7683.7	7632.5
30°	10961.5	10914.1	10689.6	10207.8	9718.6	9028.8	8296.9	8169.2	8094.3	8101.6	8072.4
32.5°	11879.5	11837.6	11585.7	11094.8	10598.4	9928.6	8957.6	8758.6	8590.7	8528.6	8550.5
35°	12649.8	12611.4	12335.9	11841.3	11341.1	10784.6	9808.1	9508.7	9235.0	9063.4	9043.4
37.5°	13102.4	13080.5	12887.0	12467.2	11970.8	11562.0	10760.8	10428.6	10025.2	9775.2	9665.8
40°	13076.8	13100.5	13067.7	12877.9	12492.8	12195.3	11753.6	11425.1	11030.9	10658.5	10435.9
42.5°	12704.5	12737.4	12885.2	12983.8	12879.8	12699.0	12620.6	12376.0	12021.9	11627.7	11319.3
45°	12193.5	12222.7	12414.3	12770.2	13067.7	13118.8	13379.8	13257.5	12958.2	12622.4	12282.9
47.5°	11410.5	11467.1	11689.8	12255.6	12963.7	13456.4	14016.8	14073.3	13900.0	13622.5	13305.0
50°	10277.2	10352.0	10664.1	11468.9	12569.5	13803.2	14964.0	15179.4	15110.0	14828.9	14507.7
52.5°	9116.3	9191.2	9607.3	10463.3	11934.4	13945.6	15896.7	16447.8	16845.6	17135.9	17192.4
55°	7908.1	7992.1	8448.3	9434.0	11087.5	13764.9	16562.8	17188.7	17592.1	17895.1	18017.3
57.5°	6544.8	6639.7	7081.4	8077.9	9890.2	13038.5	17303.7	18190.7	18791.2	19258.5	19521.3
60°	4980.6	5099.3	5557.4	6561.2	8317.0	11647.8	17634.1	18946.4	19900.9	20601.7	21017.9
62.5°	3157.4	3277.8	3754.2	4796.4	6526.5	9747.9	16699.7	18614.2	20242.2	21278.8	22041.7
65°	1722.9	1775.8	2040.5	2825.3	4400.3	7563.2	14330.7	16588.4	18933.6	20402.8	21574.5
67.5°	1292.2	1299.5	1326.9	1518.5	2343.5	5106.7	11204.3	13272.1	15876.5	17767.3	19167.2
70°	1131.6	1131.6	1135.2	1137.0	1272.1	2766.9	7590.6	9494.2	11881.4	13794.1	15533.4
72.5°	1014.8	1003.8	1000.1	978.2	996.5	1418.1	4132.0	5842.2	7855.2	10001.6	11624.1
75°	876.1	874.2	874.2	852.3	863.3	998.3	1792.2	2803.4	4363.8	6362.3	7959.3
77.5°	757.4	744.6	746.4	733.7	768.3	764.8	850.5	1155.3	1899.9	3341.8	4666.8
80°	624.2	615.1	620.5	613.3	668.0	565.8	573.1	706.3	943.6	1465.6	2066.1
82.5°	461.8	465.4	500.1	496.4	562.1	381.5	419.8	527.4	635.2	730.1	793.9
85°	270.2	275.6	359.6	377.8	412.5	200.8	257.4	313.9	354.0	392.4	408.8
87.5°	29.2	38.4	200.8	206.2	184.3	60.3	104.0	131.4	140.6	149.7	131.4
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):**

	67.5°	70°	72.5°	75°	77.5°	80°	85°	90°	95°	100°	102.5°
0°	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8
2.5°	2677.5	2653.7	2628.2	2613.5	2588.0	2566.1	2526.0	2493.1	2456.6	2431.0	2420.1
5°	2991.3	2934.7	2874.5	2830.7	2776.0	2728.5	2637.3	2527.7	2493.1	2420.1	2401.8
7.5°	3400.2	3298.0	3195.7	3111.8	3016.9	2938.4	2785.1	2588.0	2562.4	2445.7	2420.1
10°	3880.2	3730.5	3579.0	3449.4	3310.8	3190.3	2964.0	2686.6	2659.2	2509.5	2483.9
12.5°	4416.7	4234.2	4038.9	3845.5	3681.2	3511.5	3203.1	2839.8	2796.0	2619.1	2584.4
15°	4969.7	4772.7	4546.3	4312.7	4110.1	3885.7	3496.9	3040.6	2960.3	2752.2	2704.8
17.5°	5515.4	5302.0	5064.6	4803.7	4566.4	4298.1	3814.5	3265.1	3126.4	2883.7	2823.4
20°	6042.9	5825.7	5575.7	5320.2	5024.5	4717.8	4139.4	3485.9	3274.3	2993.2	2914.7
22.5°	6522.9	6336.8	6086.7	5792.9	5493.6	5148.6	4469.7	3706.8	3403.8	3077.1	2976.8
25°	7028.5	6858.7	6610.5	6327.7	5979.0	5595.7	4810.9	3916.7	3507.8	3122.8	2998.7
27.5°	7539.5	7393.5	7159.8	6862.4	6488.3	6063.0	5157.7	4110.1	3591.8	3137.4	2987.7
30°	8085.2	7972.1	7756.6	7424.5	7046.7	6575.8	5535.5	4300.0	3644.8	3117.2	2938.4
32.5°	8601.7	8598.0	8406.4	8061.5	7654.4	7136.1	5933.4	4491.6	3672.1	3060.7	2852.6
35°	9138.2	9213.1	9068.9	8740.4	8311.5	7736.6	6373.3	4696.0	3673.9	2960.3	2741.3
37.5°	9747.9	9881.1	9817.3	9505.2	9054.3	8421.0	6889.8	4925.9	3663.0	2821.6	2578.9
40°	10441.4	10623.9	10622.1	10359.2	9877.4	9187.5	7490.3	5183.3	3637.4	2648.2	2387.3
42.5°	11235.3	11452.5	11512.7	11253.6	10766.3	10025.2	8178.3	5466.1	3597.3	2476.7	2184.6
45°	12144.2	12335.9	12449.0	12208.1	11718.9	10937.8	8968.5	5787.3	3548.0	2255.8	1952.8
47.5°	13117.0	13339.7	13509.4	13303.2	12781.2	11978.1	9904.8	6201.6	3529.7	2004.0	1702.8
50°	14323.4	14553.3	14920.1	14827.1	14540.5	13894.4	11885.1	7180.0	3537.1	1764.9	1492.9
52.5°	17316.5	17843.9	18307.5	18101.3	17420.5	16312.7	13494.8	7723.8	3383.7	1569.6	1346.9
55°	18220.0	18818.6	19503.0	19417.2	18763.9	17646.9	14766.9	8178.3	3235.9	1427.2	1252.0
57.5°	19800.5	20506.8	21463.1	21444.9	20643.7	19386.2	16404.0	8722.2	3172.1	1345.1	1204.5
60°	21474.1	22373.9	23695.2	23901.5	23030.9	21722.4	18338.6	9390.2	3181.2	1299.5	1177.2
62.5°	22696.9	24016.4	25938.4	26555.2	25529.5	24087.6	20346.2	10058.2	3126.4	1246.6	1144.4
65°	22771.8	24671.7	27398.4	28358.3	27319.9	25467.4	21054.4	9926.7	2797.9	1175.4	1091.4
67.5°	20946.7	23421.5	26734.1	27787.1	26724.9	24616.9	19813.2	8678.3	2274.1	1051.3	1000.1
70°	17446.1	20318.9	23757.3	24930.8	24052.9	21919.5	17243.6	6931.7	1699.1	887.0	863.3
72.5°	13482.0	16161.3	19284.0	20369.9	19698.2	17822.1	13600.6	5051.8	1213.7	719.1	700.8
75°	9638.3	11919.7	14186.5	14600.8	13938.3	12215.4	8824.4	3155.6	850.5	589.5	564.0
77.5°	5968.1	7451.9	8265.9	7732.9	6887.9	5725.4	3591.8	1558.7	565.8	480.0	454.5
80°	2648.2	3108.1	2901.9	2586.1	2042.3	1679.1	1096.9	691.7	365.0	370.5	355.9
82.5°	890.7	941.7	916.2	910.7	821.3	719.1	465.4	299.3	204.4	237.2	231.8
85°	434.3	454.5	456.2	472.7	410.6	319.4	125.9	118.7	87.6	127.8	133.2
87.5°	131.4	133.2	120.5	131.4	105.9	73.0	23.7	32.8	16.5	31.0	31.0
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°	107.5°	110°	112.5°	115°	117.5°	120°	122.5°	125°	127.5°	130°
0°	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8
2.5°	2400.0	2392.7	2379.9	2365.4	2361.7	2343.5	2338.0	2328.8	2323.3	2314.2	2307.0
5°	2378.1	2365.4	2350.7	2334.3	2334.3	2308.8	2297.8	2286.8	2286.8	2270.4	2263.1
7.5°	2400.0	2383.6	2367.1	2352.6	2358.0	2328.8	2317.9	2307.0	2305.1	2288.6	2281.4
10°	2462.0	2445.7	2425.5	2411.0	2405.5	2381.7	2368.9	2352.6	2341.6	2330.7	2319.7
12.5°	2557.0	2535.1	2509.5	2478.5	2465.7	2445.7	2425.5	2403.6	2378.1	2367.1	2350.7
15°	2670.1	2633.6	2598.9	2560.7	2526.0	2505.8	2478.5	2443.8	2409.2	2394.5	2372.6
17.5°	2763.2	2724.8	2675.6	2630.0	2567.9	2551.4	2513.2	2471.1	2414.6	2409.2	2376.3
20°	2841.7	2783.2	2723.1	2668.3	2573.4	2564.2	2516.8	2467.6	2387.3	2387.3	2347.1
22.5°	2885.4	2805.1	2734.0	2661.0	2542.3	2535.1	2480.3	2421.9	2323.3	2327.0	2277.7
25°	2892.8	2796.0	2706.6	2619.1	2482.1	2469.4	2400.0	2336.1	2228.4	2221.1	2170.1
27.5°	2863.5	2750.4	2646.4	2540.5	2392.7	2365.4	2288.6	2212.0	2106.2	2087.9	2033.1
30°	2796.0	2662.8	2546.0	2423.8	2268.6	2224.8	2144.5	2066.1	1958.3	1934.6	1883.5
32.5°	2688.4	2536.9	2407.3	2285.1	2113.4	2058.7	1978.4	1899.9	1795.9	1777.7	1730.2
35°	2546.0	2376.3	2239.4	2109.8	1938.3	1881.7	1805.0	1735.6	1640.8	1633.4	1600.6
37.5°	2367.1	2190.1	2044.1	1920.0	1757.5	1728.4	1649.9	1598.8	1520.3	1527.6	1511.2
40°	2164.6	1983.9	1845.2	1735.6	1595.1	1569.6	1522.2	1483.8	1416.3	1436.3	1438.2
42.5°	1960.2	1779.4	1653.5	1555.0	1434.5	1418.1	1385.3	1363.4	1312.2	1352.4	1368.8
45°	1728.4	1560.4	1452.8	1377.9	1288.5	1288.5	1272.1	1270.3	1235.6	1292.2	1308.6
47.5°	1503.8	1372.5	1297.6	1252.0	1190.0	1219.2	1213.7	1228.3	1202.8	1261.1	1275.7
50°	1334.1	1242.9	1197.3	1175.4	1131.6	1177.2	1188.2	1208.2	1186.3	1237.5	1248.4
52.5°	1226.4	1166.3	1140.7	1135.2	1104.2	1160.7	1179.1	1197.3	1171.7	1219.2	1217.3
55°	1166.3	1126.1	1117.0	1127.9	1104.2	1158.9	1177.2	1190.0	1168.1	1200.9	1199.1
57.5°	1144.4	1122.5	1127.9	1144.4	1127.9	1173.5	1182.6	1197.3	1175.4	1190.0	1197.3
60°	1142.5	1142.5	1164.4	1186.3	1175.4	1208.2	1213.7	1211.9	1191.8	1193.6	1197.3
62.5°	1131.6	1158.9	1195.4	1230.1	1226.4	1266.6	1270.3	1246.6	1230.1	1211.9	1206.4
65°	1096.9	1142.5	1195.4	1242.9	1250.1	1312.2	1319.5	1295.8	1284.8	1253.8	1230.1
67.5°	1020.2	1078.6	1140.7	1199.1	1211.9	1295.8	1312.2	1321.3	1326.9	1306.8	1275.7
70°	890.7	950.8	1014.8	1082.3	1100.5	1193.6	1228.3	1270.3	1303.1	1332.3	1321.3
72.5°	724.6	779.3	834.1	896.1	923.5	1020.2	1065.8	1138.9	1190.0	1264.8	1295.8
75°	574.9	607.7	640.6	678.9	700.8	795.8	852.3	939.9	1009.2	1113.3	1182.6
77.5°	452.7	469.0	485.5	501.9	511.1	564.0	609.6	697.1	777.4	908.9	1011.1
80°	348.6	357.7	359.6	365.0	361.4	386.9	403.3	456.2	525.6	655.2	775.7
82.5°	224.5	231.8	235.5	244.6	226.3	259.1	270.2	275.6	312.1	407.0	492.8
85°	125.9	127.8	129.6	133.2	107.7	140.6	142.4	133.2	129.6	167.9	189.9
87.5°	31.0	29.2	31.0	31.0	12.8	29.2	29.2	20.0	14.6	27.4	21.9
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):**

	135°	145°	155°	165°	175°	180°
0°	2485.8	2485.8	2485.8	2485.8	2485.8	2485.8
2.5°	2290.5	2286.8	2288.6	2279.5	2275.9	2277.7
5°	2254.0	2246.7	2246.7	2241.2	2233.9	2233.9
7.5°	2270.4	2255.8	2250.4	2239.4	2228.4	2230.2
10°	2296.0	2270.4	2252.1	2235.8	2223.0	2223.0
12.5°	2312.4	2266.8	2239.4	2217.5	2202.9	2202.9
15°	2316.1	2246.7	2206.5	2182.8	2168.2	2168.2
17.5°	2294.2	2206.5	2155.5	2124.5	2108.0	2111.7
20°	2239.4	2131.7	2071.5	2038.6	2022.2	2024.0
22.5°	2153.6	2029.5	1960.2	1921.8	1905.5	1905.5
25°	2036.8	1901.8	1826.9	1795.9	1781.3	1781.3
27.5°	1903.6	1764.9	1699.1	1675.5	1666.3	1666.3
30°	1754.0	1639.0	1591.5	1575.0	1560.4	1560.4
32.5°	1628.0	1545.9	1529.4	1507.5	1469.2	1467.4
35°	1527.6	1518.5	1505.7	1440.0	1385.3	1377.9
37.5°	1472.8	1527.6	1447.3	1334.1	1290.4	1288.5
40°	1443.7	1494.7	1356.0	1301.3	1295.8	1295.8
42.5°	1374.3	1410.8	1350.6	1319.5	1319.5	1321.3
45°	1301.3	1332.3	1363.4	1336.0	1345.1	1346.9
47.5°	1250.1	1312.2	1363.4	1339.7	1357.9	1368.8
50°	1202.8	1294.0	1336.0	1336.0	1356.0	1357.9
52.5°	1191.8	1268.5	1310.4	1330.4	1332.3	1323.2
55°	1193.6	1248.4	1290.4	1315.9	1305.0	1305.0
57.5°	1191.8	1237.5	1273.9	1283.1	1288.5	1288.5
60°	1193.6	1222.8	1252.0	1248.4	1266.6	1266.6
62.5°	1199.1	1202.8	1217.3	1213.7	1241.0	1241.0
65°	1211.9	1177.2	1168.1	1171.7	1204.5	1202.8
67.5°	1235.6	1142.5	1113.3	1115.1	1162.6	1155.3
70°	1270.3	1095.1	1051.3	1040.3	1120.6	1107.9
72.5°	1281.2	1040.3	971.0	960.0	1007.5	971.0
75°	1230.1	996.5	885.2	848.6	828.6	817.6
77.5°	1096.9	969.1	795.8	719.1	688.0	680.8
80°	908.9	912.6	678.9	587.7	682.6	680.8
82.5°	686.2	788.5	543.9	509.2	494.6	412.5
85°	332.2	593.1	418.0	350.5	209.9	199.0
87.5°	29.2	248.2	240.9	156.9	71.2	67.5
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)