

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: P195809

Luminaire Tested: **NAV-AF-05-D-UNV-T2R-7050**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P195809  
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-05-D-UNV-T2R-7050  
Description: NAVION ROADWAY AND AREA LUMINAIRE  
(5) 70 CRI, 5000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II  
ROADWAY OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 31510 lumens  
Efficiency: N/A  
Efficacy: 112.9 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')  
IES Classification: Type II - Short - Semi-Cutoff  
BUG Rating: B3 - U0 - G4

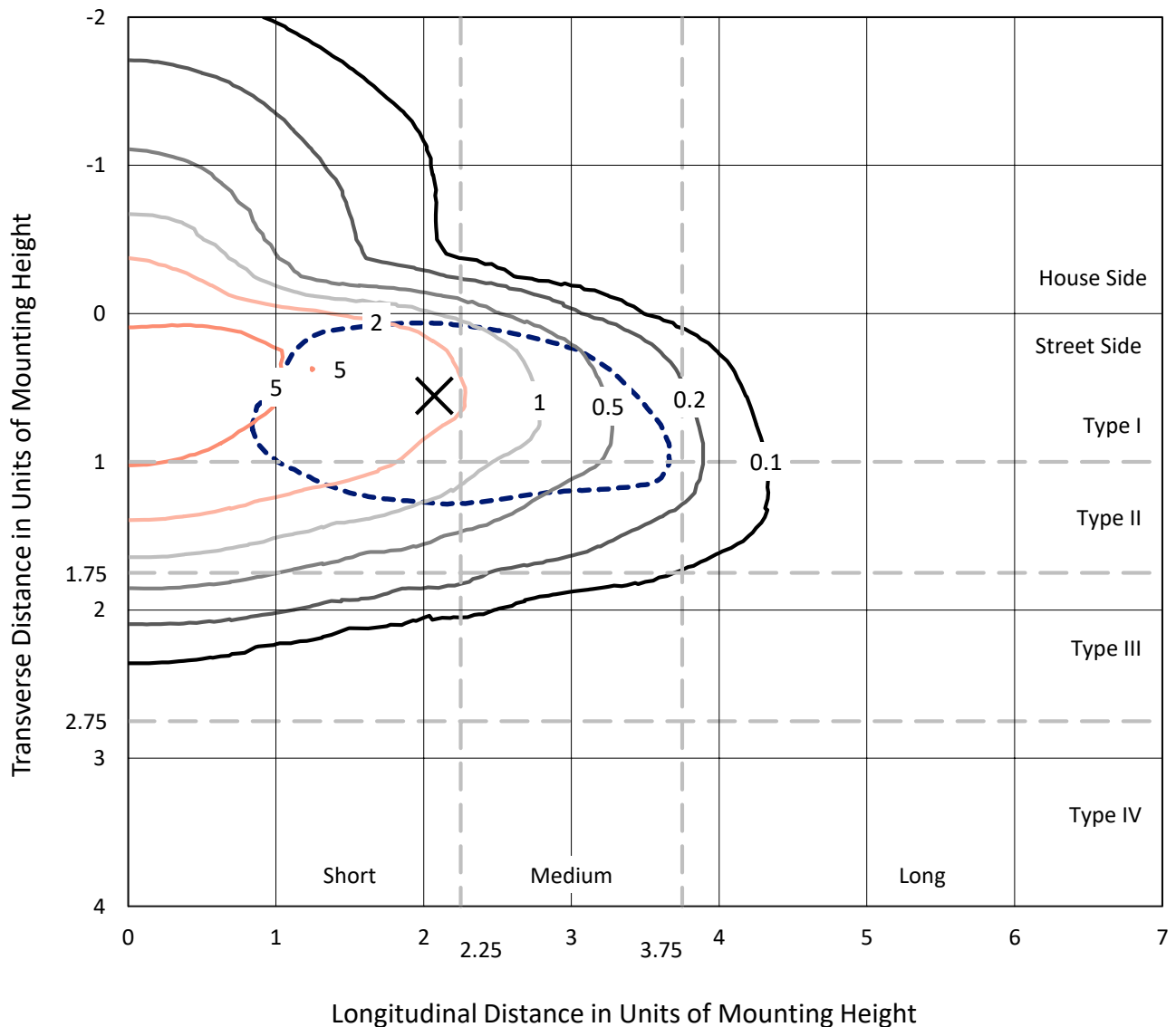
Input Watts (W): 279  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Iso-Footcandle Lines of Horizontal Illumination

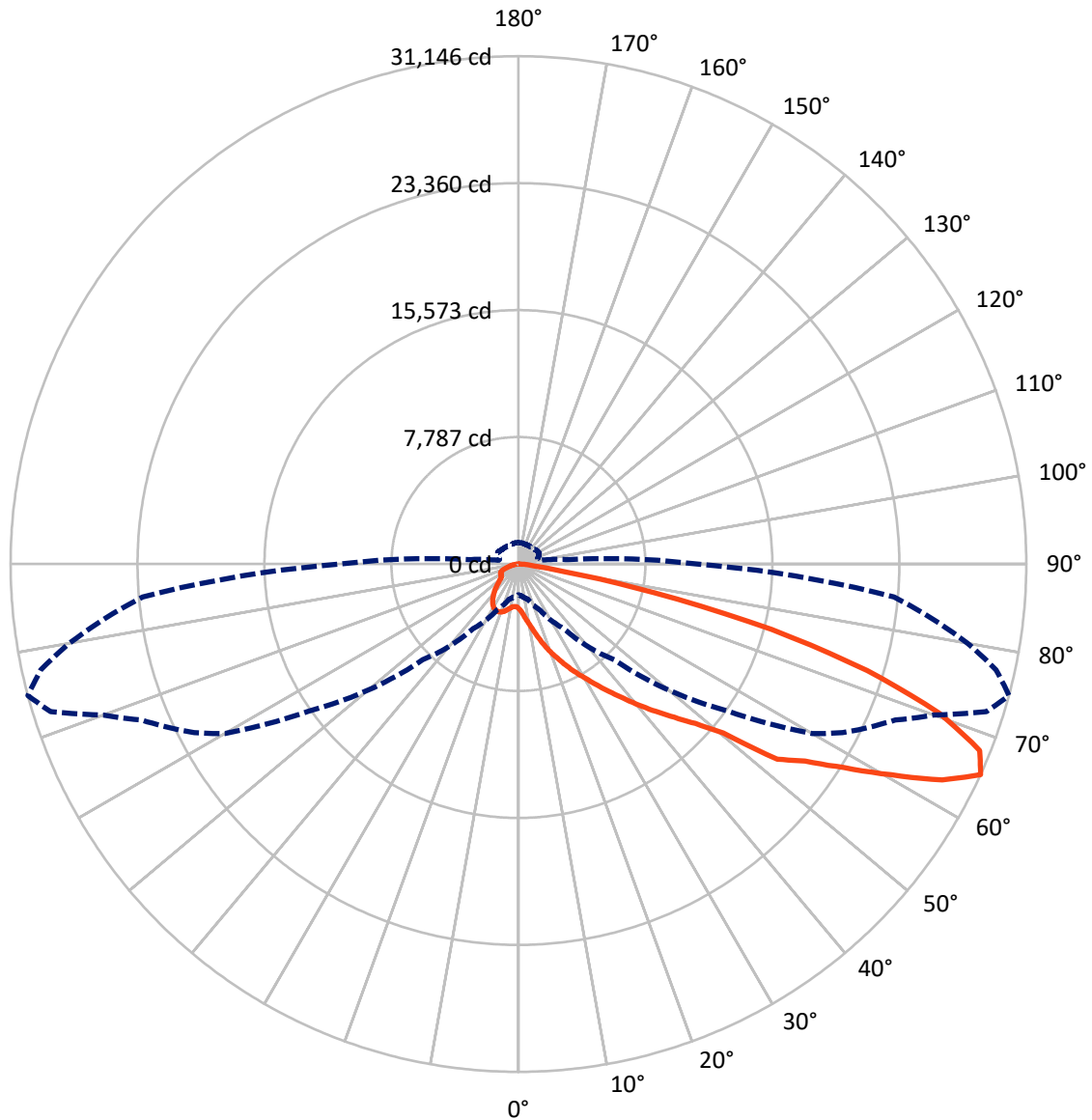
✕ Max cd  
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 8.7 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	4734.9	0.0	4734.9
	% Fixture	15.0	0.0	15.0
<b>Street Side</b>	Lumens	26775.1	0.0	26775.1
	% Fixture	85.0	0.0	85.0
<b>Total</b>	Lumens	31510.0	0.0	31510.0
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	322.3	1.0
10°-20°	1231.1	3.9
20°-30°	2484.4	7.9
30°-40°	4219.3	13.4
40°-50°	5884.9	18.7
50°-60°	7212.6	22.9
60°-70°	6786.1	21.5
70°-80°	2975.6	9.4
80°-90°	393.7	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°	31510.0	100.0
0°-180°	31510.0	100.0



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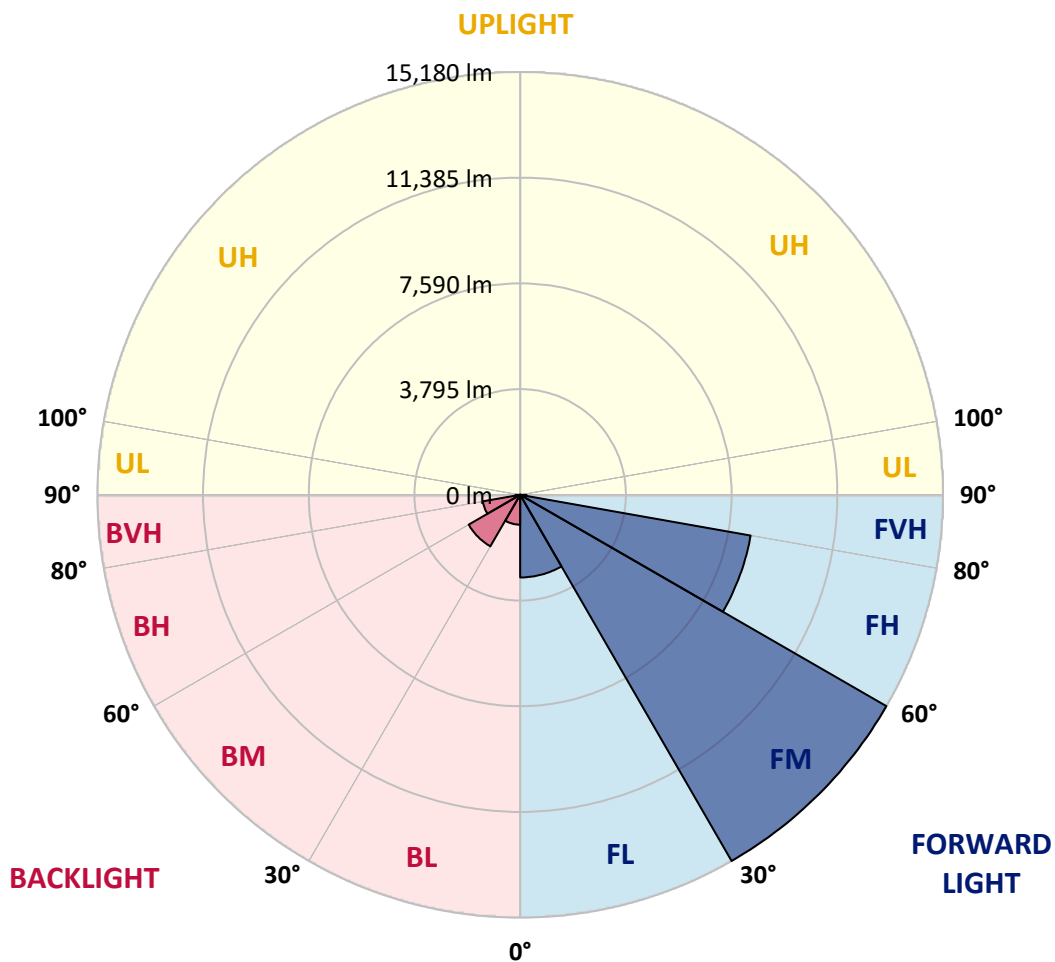
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	2966.0	9.4			
FM	(30°-60°)	15180.1	48.2			
FH	(60°-80°)	8400.8	26.7			G4/12000
FVH	(80°-90°)	228.2	0.7			G3/500
BL	(0°-30°)	1071.9	3.4	B3/2500		
BM	(30°-60°)	2136.6	6.8	B2/2500		
BH	(60°-80°)	1360.9	4.3	B3/2500		G3/2500
BVH	(80°-90°)	165.5	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°	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1
2.5°	3437.7	3397.7	3401.7	3345.5	3263.3	3173.1	3099.0	3058.9	3024.8	3014.8	2958.7
5°	4496.1	4446.0	4428.0	4299.7	4107.3	3878.7	3652.2	3564.0	3491.9	3447.8	3339.5
7.5°	5362.1	5336.0	5312.0	5193.7	5003.3	4710.6	4345.8	4215.5	4095.2	3962.9	3832.6
10°	5951.4	5941.4	5931.4	5849.2	5690.8	5436.2	5043.4	4901.0	4750.7	4582.3	4411.9
12.5°	6396.4	6396.4	6404.4	6336.3	6240.1	6043.6	5686.8	5554.5	5402.2	5225.8	5031.3
15°	6695.1	6703.1	6745.2	6765.2	6715.1	6588.8	6276.1	6159.9	6015.5	5841.2	5648.7
17.5°	6893.5	6909.6	6971.7	7037.9	7102.0	7057.9	6825.4	6717.1	6586.8	6426.5	6246.1
20°	7354.6	7334.5	7336.5	7316.5	7410.7	7444.8	7316.5	7226.3	7122.0	6975.7	6811.3
22.5°	8322.7	8284.7	8186.4	7935.9	7821.6	7809.6	7733.4	7685.3	7605.1	7512.9	7348.6
25°	9585.6	9541.5	9347.1	8934.1	8593.4	8278.6	8138.3	8108.3	8056.1	7994.0	7875.7
27.5°	10890.5	10842.4	10591.9	10070.7	9625.7	8990.2	8553.3	8513.2	8465.1	8439.0	8382.9
30°	12039.1	11987.0	11740.4	11211.2	10674.0	9916.3	9112.5	8972.2	8890.0	8898.0	8866.0
32.5°	13047.4	13001.3	12724.7	12185.4	11640.2	10904.6	9838.2	9619.7	9435.2	9367.1	9391.2
35°	13893.3	13851.2	13548.5	13005.3	12456.1	11844.7	10772.3	10443.5	10142.8	9954.4	9932.4
37.5°	14390.4	14366.4	14153.9	13692.8	13147.6	12698.6	11818.6	11453.8	11010.8	10736.2	10615.9
40°	14362.3	14388.4	14352.3	14143.9	13720.9	13394.2	12909.1	12548.3	12115.3	11706.4	11461.8
42.5°	13953.4	13989.5	14151.9	14260.1	14145.9	13947.4	13861.2	13592.6	13203.7	12770.8	12432.0
45°	13392.2	13424.2	13634.7	14025.6	14352.3	14408.5	14695.1	14560.8	14232.1	13863.2	13490.4
47.5°	12532.2	12594.4	12838.9	13460.3	14238.1	14779.3	15394.7	15456.8	15266.4	14961.7	14612.9
50°	11287.4	11369.6	11712.4	12596.4	13805.1	15160.1	16435.0	16671.5	16595.4	16286.7	15933.9
52.5°	10012.5	10094.7	10551.8	11491.9	13107.5	15316.5	17459.3	18064.7	18501.7	18820.4	18882.5
55°	8685.6	8777.8	9278.9	10361.3	12177.4	15118.0	18191.0	18878.5	19321.5	19654.3	19788.6
57.5°	7188.2	7292.4	7777.5	8872.0	10862.5	14320.3	19004.8	19979.0	20638.5	21151.6	21440.3
60°	5470.3	5600.6	6103.7	7206.2	9134.6	12792.8	19367.6	20808.9	21857.2	22627.0	23084.0
62.5°	3467.8	3600.1	4123.3	5267.9	7168.1	10706.1	18341.3	20444.0	22232.1	23370.6	24208.5
65°	1892.3	1950.4	2241.0	3103.0	4832.9	8306.7	15739.4	18219.0	20794.8	22408.5	23695.4
67.5°	1419.2	1427.2	1457.3	1667.8	2573.8	5608.6	12305.7	14576.8	17437.3	19513.9	21051.4
70°	1242.8	1242.8	1246.8	1248.8	1397.1	3038.8	8336.8	10427.5	13049.4	15150.1	17060.4
72.5°	1114.5	1102.5	1098.5	1074.4	1094.5	1557.5	4538.2	6416.5	8627.4	10984.7	12766.8
75°	962.2	960.2	960.2	936.1	948.1	1096.5	1968.4	3078.9	4792.8	6987.7	8741.7
77.5°	831.9	817.8	819.8	805.8	843.9	839.9	934.1	1268.9	2086.7	3670.3	5125.5
80°	685.5	675.5	681.5	673.5	733.7	621.4	629.4	775.7	1036.3	1609.6	2269.1
82.5°	507.1	511.2	549.2	545.2	617.4	418.9	461.0	579.3	697.6	801.8	872.0
85°	296.7	302.7	394.9	414.9	453.0	220.5	282.6	344.8	388.9	431.0	449.0
87.5°	32.1	42.1	220.5	226.5	202.5	66.1	114.3	144.3	154.3	164.4	144.3
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):**

	67.5°	70°	72.5°	75°	77.5°	80°	85°	90°	95°	100°	102.5°
0°	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1
2.5°	2940.6	2914.6	2886.5	2870.5	2842.4	2818.3	2774.2	2738.2	2698.1	2670.0	2658.0
5°	3285.4	3223.3	3157.1	3109.0	3048.9	2996.7	2896.5	2776.3	2738.2	2658.0	2637.9
7.5°	3734.4	3622.2	3509.9	3417.7	3313.5	3227.3	3058.9	2842.4	2814.3	2686.0	2658.0
10°	4261.6	4097.2	3930.9	3788.5	3636.2	3503.9	3255.3	2950.6	2920.6	2756.2	2728.1
12.5°	4850.9	4650.5	4436.0	4223.5	4043.1	3856.7	3517.9	3119.0	3070.9	2876.5	2838.4
15°	5458.3	5241.8	4993.2	4736.7	4514.2	4267.6	3840.6	3339.5	3251.3	3022.8	2970.7
17.5°	6057.6	5823.1	5562.5	5275.9	5015.3	4720.6	4189.4	3586.1	3433.7	3167.1	3101.0
20°	6636.9	6398.4	6123.8	5843.2	5518.4	5181.7	4546.2	3828.6	3596.1	3287.4	3201.2
22.5°	7164.1	6959.7	6685.1	6362.3	6033.6	5654.7	4909.1	4071.2	3738.4	3379.6	3269.4
25°	7719.4	7533.0	7260.4	6949.7	6566.8	6145.8	5283.9	4301.7	3852.7	3429.7	3293.4
27.5°	8280.6	8120.3	7863.7	7537.0	7126.0	6659.0	5664.8	4514.2	3944.9	3445.8	3281.4
30°	8880.0	8755.7	8519.2	8154.4	7739.4	7222.3	6079.7	4722.6	4003.0	3423.7	3227.3
32.5°	9447.3	9443.3	9232.8	8853.9	8406.9	7837.7	6516.7	4933.1	4033.1	3361.6	3133.1
35°	10036.6	10118.8	9960.4	9599.6	9128.6	8497.1	6999.8	5157.6	4035.1	3251.3	3010.8
37.5°	10706.1	10852.4	10782.3	10439.5	9944.4	9248.8	7567.0	5410.2	4023.1	3099.0	2832.4
40°	11467.8	11668.3	11666.3	11377.6	10848.4	10090.7	8226.5	5692.8	3995.0	2908.6	2621.9
42.5°	12339.8	12578.3	12644.5	12359.8	11824.6	11010.8	8982.2	6003.5	3950.9	2720.1	2399.4
45°	13338.0	13548.5	13672.8	13408.2	12871.0	12013.1	9850.2	6356.3	3896.8	2477.6	2144.8
47.5°	14406.4	14651.0	14837.4	14610.9	14037.6	13155.6	10878.5	6811.3	3876.7	2201.0	1870.2
50°	15731.4	15984.0	16386.9	16284.7	15970.0	15260.4	13053.4	7885.8	3884.7	1938.4	1639.7
52.5°	19018.8	19598.1	20107.3	19880.8	19133.1	17916.4	14821.4	8483.1	3716.4	1723.9	1479.3
55°	20011.1	20668.5	21420.2	21326.0	20608.4	19381.7	16218.5	8982.2	3554.0	1567.5	1375.1
57.5°	21747.0	22522.7	23573.1	23553.0	22673.1	21292.0	18016.6	9579.6	3483.8	1477.3	1323.0
60°	23585.1	24573.3	26024.6	26251.1	25295.0	23857.7	20141.4	10313.2	3493.9	1427.2	1292.9
62.5°	24928.1	26377.4	28488.2	29165.7	28039.1	26455.6	22346.3	11046.9	3433.7	1369.1	1256.8
65°	25010.3	27097.0	30091.8	31146.1	30005.6	27971.0	23124.1	10902.6	3072.9	1290.9	1198.7
67.5°	23005.8	25723.9	29362.1	30518.7	29352.1	27036.9	21761.0	9531.5	2497.6	1154.6	1098.5
70°	19161.2	22316.3	26092.8	27381.7	26417.5	24074.2	18938.7	7613.1	1866.2	974.2	948.1
72.5°	14807.3	17750.0	21179.7	22372.4	21634.7	19574.1	14937.6	5548.5	1333.0	789.8	769.7
75°	10585.8	13091.5	15581.1	16036.1	15308.5	13416.2	9691.8	3465.8	934.1	647.5	619.4
77.5°	6554.8	8184.4	9078.4	8493.1	7565.0	6288.2	3944.9	1711.9	621.4	527.2	499.1
80°	2908.6	3413.7	3187.2	2840.4	2243.1	1844.2	1204.7	759.7	400.9	406.9	390.9
82.5°	978.2	1034.3	1006.3	1000.3	902.0	789.8	511.2	328.7	224.5	260.6	254.6
85°	477.1	499.1	501.1	519.2	451.0	350.8	138.3	130.3	96.2	140.3	146.3
87.5°	144.3	146.3	132.3	144.3	116.3	80.2	26.1	36.1	18.0	34.1	34.1
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°	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1
2.5°	2635.9	2627.9	2613.9	2597.9	2593.8	2573.8	2567.8	2557.8	2551.7	2541.7	2533.7
5°	2611.9	2597.9	2581.8	2563.8	2563.8	2535.7	2523.7	2511.7	2511.7	2493.6	2485.6
7.5°	2635.9	2617.9	2599.9	2583.8	2589.8	2557.8	2545.7	2533.7	2531.7	2513.7	2505.6
10°	2704.1	2686.0	2664.0	2648.0	2642.0	2615.9	2601.9	2583.8	2571.8	2559.8	2547.7
12.5°	2808.3	2784.3	2756.2	2722.1	2708.1	2686.0	2664.0	2639.9	2611.9	2599.9	2581.8
15°	2932.6	2892.5	2854.4	2812.3	2774.2	2752.2	2722.1	2684.0	2646.0	2629.9	2605.9
17.5°	3034.8	2992.7	2938.6	2888.5	2820.4	2802.3	2760.2	2714.1	2652.0	2646.0	2609.9
20°	3121.0	3056.9	2990.7	2930.6	2826.4	2816.3	2764.2	2710.1	2621.9	2621.9	2577.8
22.5°	3169.1	3080.9	3002.8	2922.6	2792.3	2784.3	2724.1	2660.0	2551.7	2555.8	2501.6
25°	3177.2	3070.9	2972.7	2876.5	2726.1	2712.1	2635.9	2565.8	2447.5	2439.5	2383.4
27.5°	3145.1	3020.8	2906.5	2790.3	2627.9	2597.9	2513.7	2429.5	2313.2	2293.2	2233.0
30°	3070.9	2924.6	2796.3	2662.0	2491.6	2443.5	2355.3	2269.1	2150.8	2124.8	2068.7
32.5°	2952.6	2786.3	2644.0	2509.7	2321.2	2261.1	2172.9	2086.7	1972.4	1952.4	1900.3
35°	2796.3	2609.9	2459.5	2317.2	2128.8	2066.7	1982.5	1906.3	1802.1	1794.0	1758.0
37.5°	2599.9	2405.4	2245.1	2108.7	1930.3	1898.3	1812.1	1756.0	1669.8	1677.8	1659.7
40°	2377.4	2178.9	2026.6	1906.3	1751.9	1723.9	1671.8	1629.7	1555.5	1577.6	1579.6
42.5°	2152.8	1954.4	1816.1	1707.8	1575.5	1557.5	1521.4	1497.4	1441.2	1485.3	1503.4
45°	1898.3	1713.9	1595.6	1513.4	1415.2	1415.2	1397.1	1395.1	1357.1	1419.2	1437.2
47.5°	1651.7	1507.4	1425.2	1375.1	1306.9	1339.0	1333.0	1349.0	1321.0	1385.1	1401.2
50°	1465.3	1365.1	1315.0	1290.9	1242.8	1292.9	1304.9	1327.0	1302.9	1359.1	1371.1
52.5°	1347.0	1280.9	1252.8	1246.8	1212.7	1274.9	1294.9	1315.0	1286.9	1339.0	1337.0
55°	1280.9	1236.8	1226.8	1238.8	1212.7	1272.9	1292.9	1306.9	1282.9	1319.0	1317.0
57.5°	1256.8	1232.8	1238.8	1256.8	1238.8	1288.9	1298.9	1315.0	1290.9	1306.9	1315.0
60°	1254.8	1254.8	1278.9	1302.9	1290.9	1327.0	1333.0	1331.0	1308.9	1311.0	1315.0
62.5°	1242.8	1272.9	1313.0	1351.0	1347.0	1391.1	1395.1	1369.1	1351.0	1331.0	1325.0
65°	1204.7	1254.8	1313.0	1365.1	1373.1	1441.2	1449.3	1423.2	1411.2	1377.1	1351.0
67.5°	1120.5	1184.7	1252.8	1317.0	1331.0	1423.2	1441.2	1451.3	1457.3	1435.2	1401.2
70°	978.2	1044.4	1114.5	1188.7	1208.7	1311.0	1349.0	1395.1	1431.2	1463.3	1451.3
72.5°	795.8	855.9	916.1	984.2	1014.3	1120.5	1170.6	1250.8	1306.9	1389.1	1423.2
75°	631.4	667.5	703.6	745.7	769.7	874.0	936.1	1032.3	1108.5	1222.8	1298.9
77.5°	497.1	515.2	533.2	551.2	561.3	619.4	669.5	765.7	853.9	998.2	1110.5
80°	382.9	392.9	394.9	400.9	396.9	425.0	443.0	501.1	577.3	719.6	851.9
82.5°	246.6	254.6	258.6	268.6	248.6	284.6	296.7	302.7	342.8	447.0	541.2
85°	138.3	140.3	142.3	146.3	118.3	154.3	156.4	146.3	142.3	184.4	208.5
87.5°	34.1	32.1	34.1	34.1	14.0	32.1	32.1	22.0	16.0	30.1	24.1
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°	2730.1	2730.1	2730.1	2730.1	2730.1	2730.1
2.5°	2515.7	2511.7	2513.7	2503.6	2499.6	2501.6
5°	2475.6	2467.6	2467.6	2461.5	2453.5	2453.5
7.5°	2493.6	2477.6	2471.6	2459.5	2447.5	2449.5
10°	2521.7	2493.6	2473.6	2455.5	2441.5	2441.5
12.5°	2539.7	2489.6	2459.5	2435.5	2419.4	2419.4
15°	2543.7	2467.6	2423.5	2397.4	2381.4	2381.4
17.5°	2519.7	2423.5	2367.3	2333.3	2315.2	2319.2
20°	2459.5	2341.3	2275.1	2239.0	2221.0	2223.0
22.5°	2365.3	2229.0	2152.8	2110.8	2092.7	2092.7
25°	2237.0	2088.7	2006.5	1972.4	1956.4	1956.4
27.5°	2090.7	1938.4	1866.2	1840.1	1830.1	1830.1
30°	1926.3	1800.1	1747.9	1729.9	1713.9	1713.9
32.5°	1788.0	1697.8	1679.8	1655.7	1613.6	1611.6
35°	1677.8	1667.8	1653.7	1581.6	1521.4	1513.4
37.5°	1617.6	1677.8	1589.6	1465.3	1417.2	1415.2
40°	1585.6	1641.7	1489.4	1429.2	1423.2	1423.2
42.5°	1509.4	1549.5	1483.3	1449.3	1449.3	1451.3
45°	1429.2	1463.3	1497.4	1467.3	1477.3	1479.3
47.5°	1373.1	1441.2	1497.4	1471.3	1491.4	1503.4
50°	1321.0	1421.2	1467.3	1467.3	1489.4	1491.4
52.5°	1308.9	1393.1	1439.2	1461.3	1463.3	1453.3
55°	1311.0	1371.1	1417.2	1445.3	1433.2	1433.2
57.5°	1308.9	1359.1	1399.2	1409.2	1415.2	1415.2
60°	1311.0	1343.0	1375.1	1371.1	1391.1	1391.1
62.5°	1317.0	1321.0	1337.0	1333.0	1363.1	1363.1
65°	1331.0	1292.9	1282.9	1286.9	1323.0	1321.0
67.5°	1357.1	1254.8	1222.8	1224.8	1276.9	1268.9
70°	1395.1	1202.7	1154.6	1142.6	1230.8	1216.7
72.5°	1407.2	1142.6	1066.4	1054.4	1106.5	1066.4
75°	1351.0	1094.5	972.2	932.1	910.0	898.0
77.5°	1204.7	1064.4	874.0	789.8	755.7	747.7
80°	998.2	1002.3	745.7	645.5	749.7	747.7
82.5°	753.7	866.0	597.3	559.3	543.2	453.0
85°	364.8	651.5	459.0	384.9	230.5	218.5
87.5°	32.1	272.6	264.6	172.4	78.2	74.2
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)