

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: P196288

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196288
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
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 4000K, 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: 26152.8 lumens
Efficiency: N/A
Efficacy: 116.2 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short - Semi-Cutoff
BUG Rating: B3 - U0 - G3

Input Watts (W): 225
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

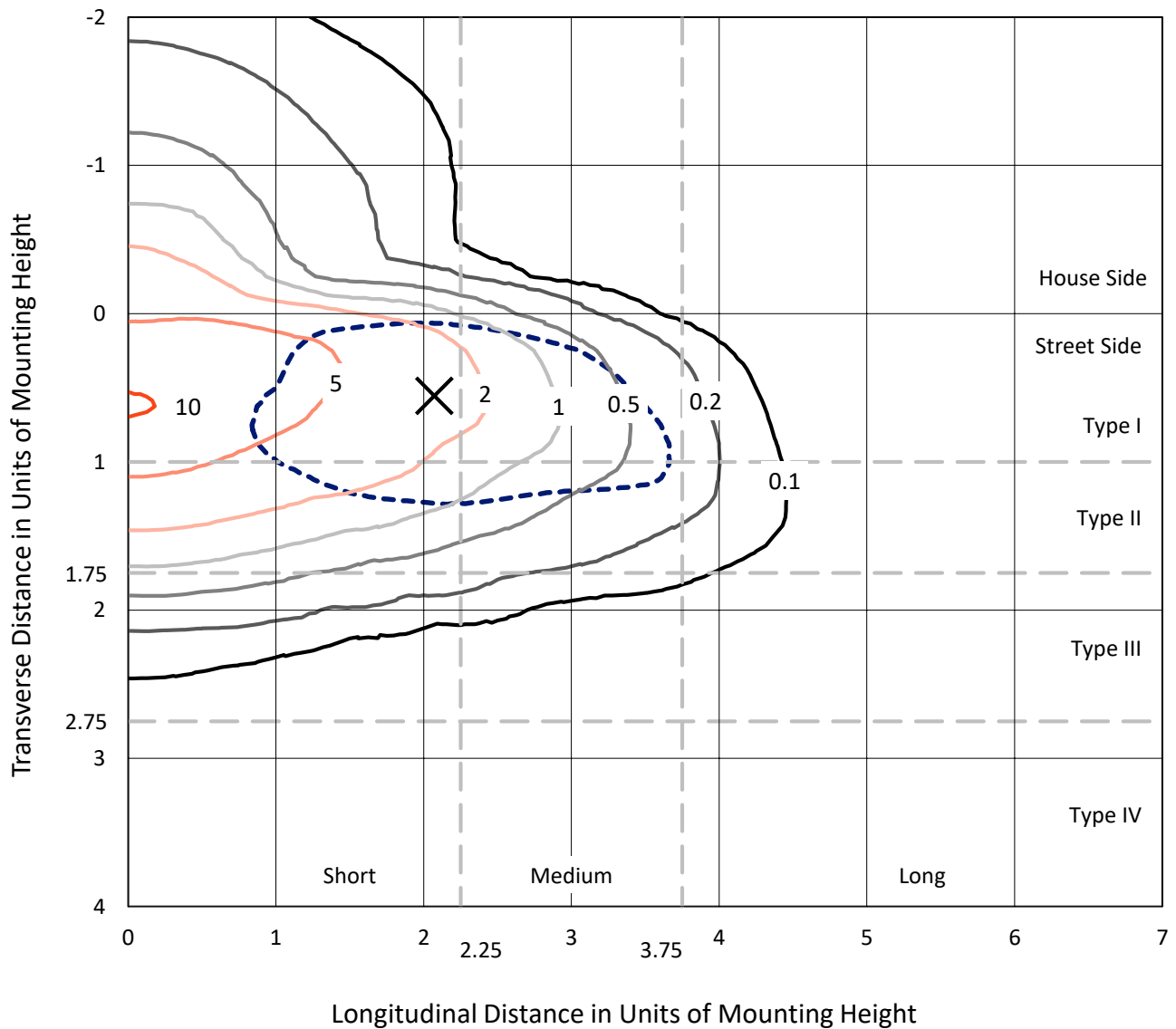


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Iso-Footcandle Lines of Horizontal Illumination

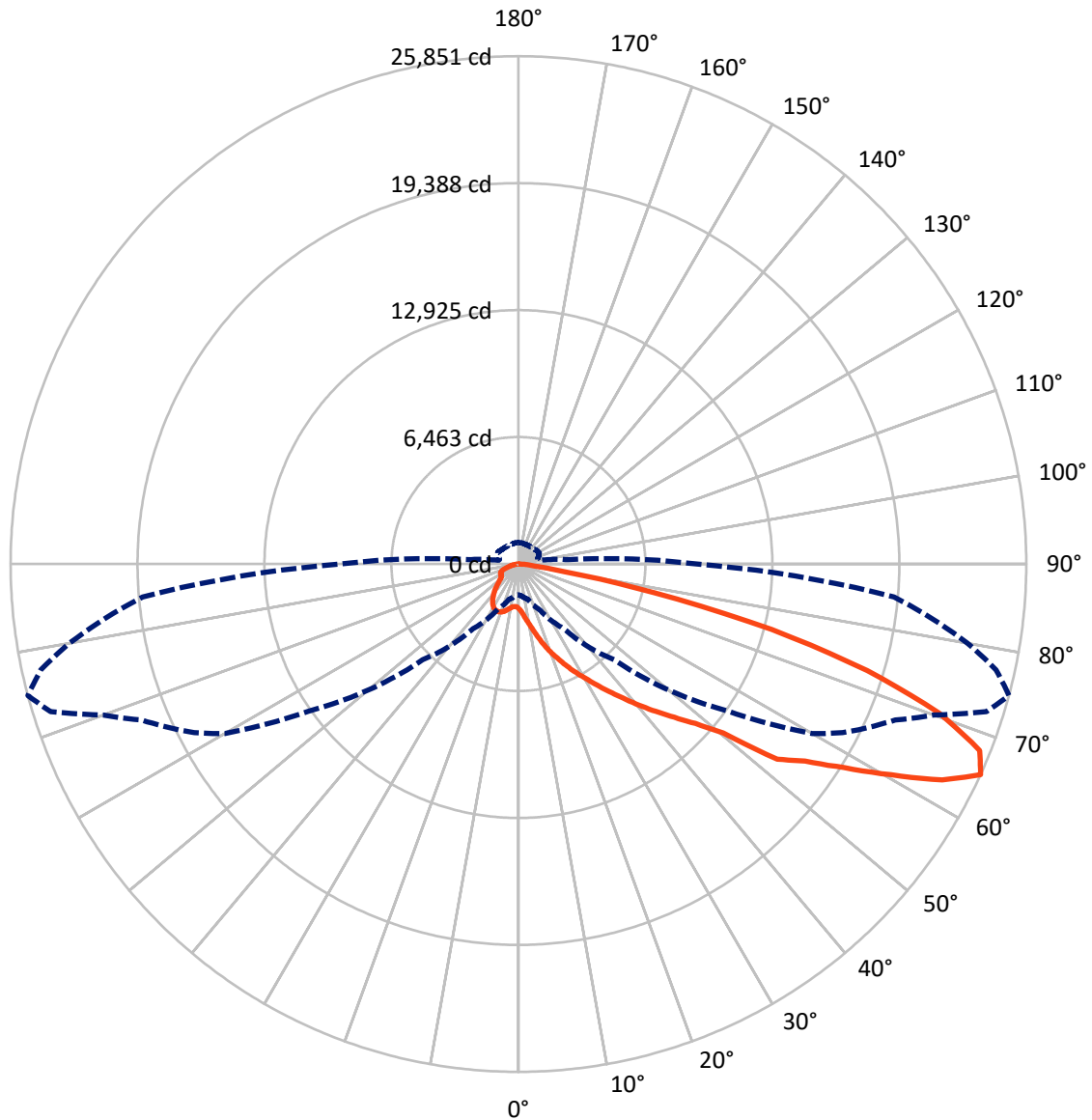
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 10.4 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
House Side	Lumens	3929.8	0.0	3929.8
	% Fixture	15.0	0.0	15.0
Street Side	Lumens	22222.9	0.0	22222.9
	% Fixture	85.0	0.0	85.0
Total	Lumens	26152.8	0.0	26152.8
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	267.5	1.0
10°-20°	1021.8	3.9
20°-30°	2062.0	7.9
30°-40°	3501.9	13.4
40°-50°	4884.3	18.7
50°-60°	5986.3	22.9
60°-70°	5632.3	21.5
70°-80°	2469.7	9.4
80°-90°	326.8	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°	26152.8	100.0
0°-180°	26152.8	100.0



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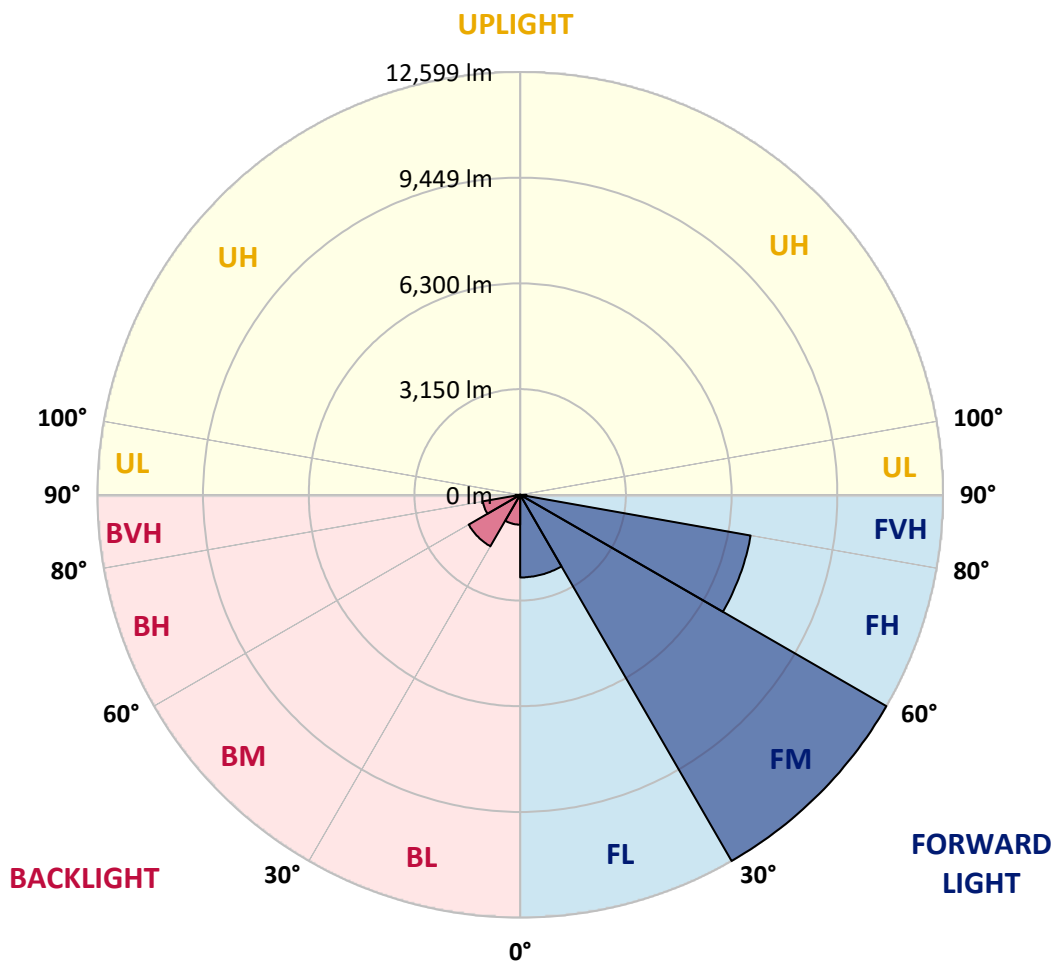
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	2461.7	9.4			
FM (30°-60°)	12599.2	48.2			
FH (60°-80°)	6972.6	26.7			G3/7500
FVH (80°-90°)	189.4	0.7			G2/225
BL (0°-30°)	889.6	3.4	B2/1000		
BM (30°-60°)	1773.4	6.8	B2/2500		
BH (60°-80°)	1129.5	4.3	B3/2500		G3/2500
BVH (80°-90°)	137.3	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-G3

Type II Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	57.5°	60°	62.5°	65°
0°	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9
2.5°	2853.3	2820.0	2823.3	2776.7	2708.6	2633.7	2572.1	2538.9	2510.5	2502.2	2455.6
5°	3731.7	3690.1	3675.2	3568.7	3409.0	3219.3	3031.3	2958.1	2898.2	2861.6	2771.8
7.5°	4450.4	4428.8	4408.8	4310.7	4152.7	3909.7	3606.9	3498.8	3399.0	3289.2	3181.0
10°	4939.5	4931.2	4923.0	4854.7	4723.3	4512.0	4185.9	4067.8	3943.0	3803.2	3661.9
12.5°	5308.9	5308.9	5315.6	5259.0	5179.1	5016.1	4720.0	4610.1	4483.7	4337.3	4175.9
15°	5556.8	5563.4	5598.4	5615.1	5573.4	5468.6	5209.1	5112.6	4992.8	4848.1	4688.4
17.5°	5721.5	5734.9	5786.4	5841.3	5894.5	5857.9	5664.9	5575.1	5467.0	5333.9	5184.1
20°	6104.2	6087.5	6089.2	6072.5	6150.7	6179.0	6072.5	5997.7	5911.1	5789.7	5653.3
22.5°	6907.8	6876.2	6794.6	6586.7	6491.9	6481.8	6418.6	6378.7	6312.1	6235.6	6099.1
25°	7955.9	7919.3	7757.9	7415.2	7132.3	6871.2	6754.6	6729.7	6686.4	6634.9	6536.8
27.5°	9039.0	8999.0	8791.0	8358.5	7989.1	7461.7	7099.1	7065.8	7025.8	7004.2	6957.6
30°	9992.3	9949.0	9744.3	9305.2	8859.3	8230.4	7563.2	7446.8	7378.5	7385.2	7358.6
32.5°	10829.1	10790.8	10561.3	10113.7	9661.2	9050.6	8165.5	7984.1	7831.1	7774.5	7794.5
35°	11531.2	11496.2	11245.0	10794.2	10338.4	9830.9	8940.8	8668.0	8418.4	8262.0	8243.7
37.5°	11943.8	11923.8	11747.5	11364.8	10912.3	10539.7	9809.3	9506.5	9138.7	8910.8	8811.0
40°	11920.5	11942.1	11912.2	11739.2	11388.1	11116.9	10714.3	10414.9	10055.5	9716.1	9513.1
42.5°	11581.1	11611.0	11745.8	11835.6	11740.8	11576.1	11504.6	11281.6	10958.9	10599.5	10318.3
45°	11115.3	11141.9	11316.6	11641.0	11912.2	11958.8	12196.6	12085.2	11812.3	11506.3	11196.8
47.5°	10401.6	10453.1	10656.1	11171.9	11817.3	12266.5	12777.3	12828.9	12670.9	12417.9	12128.5
50°	9368.4	9436.6	9721.1	10454.8	11458.0	12582.7	13640.7	13837.1	13773.8	13517.7	13224.8
52.5°	8310.2	8378.5	8757.8	9538.1	10879.0	12712.4	14490.9	14993.4	15356.0	15620.6	15672.2
55°	7208.8	7285.4	7701.3	8599.7	10107.1	12547.7	15098.2	15668.8	16036.5	16312.7	16424.2
57.5°	5966.1	6052.6	6455.2	7363.6	9015.7	11885.6	15773.7	16582.2	17129.6	17555.5	17795.0
60°	4540.3	4648.4	5066.0	5981.1	7581.5	10617.8	16074.8	17271.0	18141.1	18779.9	19159.4
62.5°	2878.2	2988.0	3422.3	4372.2	5949.5	8885.9	15222.9	16968.2	18452.2	19397.2	20092.7
65°	1570.5	1618.8	1860.0	2575.4	4011.2	6894.4	13063.5	15121.5	17259.3	18598.7	19666.7
67.5°	1177.9	1184.6	1209.5	1384.3	2136.2	4655.0	10213.6	12098.5	14472.6	16196.3	17472.3
70°	1031.5	1031.5	1034.8	1036.5	1159.6	2522.2	6919.3	8654.7	10830.8	12574.3	14159.9
72.5°	925.1	915.0	911.8	891.7	908.4	1292.7	3766.6	5325.6	7160.7	9117.2	10596.2
75°	798.6	796.9	796.9	776.9	787.0	910.0	1633.8	2555.4	3977.9	5799.7	7255.5
77.5°	690.5	678.8	680.5	668.8	700.4	697.1	775.3	1053.1	1732.0	3046.2	4254.1
80°	569.0	560.7	565.7	559.0	609.0	515.8	522.4	643.8	860.1	1336.0	1883.4
82.5°	420.9	424.2	455.8	452.6	512.4	347.7	382.7	480.8	579.0	665.5	723.7
85°	246.2	251.2	327.8	344.4	376.0	183.0	234.6	286.1	322.7	357.7	372.7
87.5°	26.6	35.0	183.0	188.0	168.1	54.9	94.8	119.8	128.1	136.5	119.8
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):

	67.5°	70°	72.5°	75°	77.5°	80°	85°	90°	95°	100°	102.5°
0°	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9
2.5°	2440.7	2419.1	2395.8	2382.5	2359.1	2339.2	2302.6	2272.6	2239.3	2216.0	2206.1
5°	2726.8	2675.2	2620.4	2580.4	2530.5	2487.2	2404.0	2304.2	2272.6	2206.1	2189.4
7.5°	3099.5	3006.4	2913.2	2836.6	2750.1	2678.6	2538.9	2359.1	2335.8	2229.4	2206.1
10°	3537.1	3400.6	3262.5	3144.4	3018.0	2908.1	2701.9	2448.9	2424.0	2287.6	2264.3
12.5°	4026.2	3859.8	3681.8	3505.4	3355.7	3201.0	2919.8	2588.8	2548.8	2387.5	2355.9
15°	4530.2	4350.6	4144.3	3931.3	3746.7	3542.1	3187.7	2771.8	2698.5	2508.9	2465.6
17.5°	5027.7	4833.1	4616.8	4378.8	4162.6	3918.0	3477.1	2976.4	2849.9	2628.7	2573.7
20°	5508.6	5310.5	5082.6	4849.7	4580.2	4300.7	3773.3	3177.7	2984.7	2728.5	2656.9
22.5°	5946.1	5776.4	5548.5	5280.6	5007.8	4693.3	4074.4	3379.0	3102.8	2805.0	2713.5
25°	6406.9	6252.3	6026.0	5768.1	5450.3	5100.9	4385.6	3570.3	3197.6	2846.6	2733.5
27.5°	6872.8	6739.7	6526.7	6255.5	5914.5	5526.9	4701.7	3746.7	3274.2	2860.0	2723.5
30°	7370.3	7267.1	7070.7	6767.9	6423.6	5994.4	5046.0	3919.7	3322.4	2841.7	2678.6
32.5°	7841.1	7837.7	7663.0	7348.6	6977.6	6505.1	5408.8	4094.4	3347.4	2790.0	2600.3
35°	8330.2	8398.4	8267.0	7967.6	7576.6	7052.4	5809.6	4280.7	3349.0	2698.5	2498.9
37.5°	8885.9	9007.4	8949.1	8664.6	8253.7	7676.3	6280.5	4490.3	3339.1	2572.1	2350.8
40°	9518.1	9684.5	9682.8	9443.3	9004.0	8375.1	6827.9	4724.9	3315.8	2414.1	2176.1
42.5°	10241.8	10439.8	10494.7	10258.5	9814.3	9138.7	7455.1	4982.8	3279.2	2257.7	1991.5
45°	11070.4	11245.0	11348.2	11128.6	10682.7	9970.6	8175.5	5275.7	3234.3	2056.3	1780.1
47.5°	11957.1	12160.1	12314.8	12126.8	11651.0	10919.0	9029.0	5653.3	3217.6	1826.8	1552.2
50°	13056.8	13266.4	13600.8	13516.0	13254.8	12665.9	10834.1	6545.0	3224.2	1608.8	1360.9
52.5°	15785.3	16266.1	16688.7	16500.7	15880.2	14870.2	12301.5	7040.9	3084.5	1430.8	1227.8
55°	16608.8	17154.6	17778.5	17700.2	17104.7	16086.4	13461.1	7455.1	2949.8	1301.0	1141.3
57.5°	18049.7	18693.5	19565.3	19548.6	18818.3	17672.0	14953.5	7950.9	2891.6	1226.1	1098.0
60°	19575.3	20395.5	21600.0	21787.9	20994.4	19801.5	16717.0	8559.8	2899.9	1184.6	1073.1
62.5°	20689.9	21892.8	23644.7	24207.0	23272.0	21957.6	18547.0	9168.7	2849.9	1136.3	1043.1
65°	20758.1	22490.1	24975.7	25850.8	24904.1	23215.5	19192.6	9048.9	2550.4	1071.4	994.9
67.5°	19094.4	21350.4	24370.1	25330.0	24361.8	22440.2	18061.2	7911.0	2073.0	958.3	911.8
70°	15903.4	18522.2	21656.6	22726.3	21926.0	19981.2	15718.8	6318.8	1549.0	808.5	787.0
72.5°	12289.8	14732.1	17578.8	18568.7	17956.5	16246.2	12398.0	4605.1	1106.3	655.5	638.8
75°	8786.0	10865.7	12932.0	13309.7	12705.8	11135.2	8044.1	2876.5	775.3	537.4	514.1
77.5°	5440.4	6792.9	7535.0	7049.2	6278.9	5219.1	3274.2	1420.8	515.8	437.5	414.3
80°	2414.1	2833.3	2645.4	2357.5	1861.7	1530.6	999.9	630.5	332.8	337.8	324.4
82.5°	811.9	858.5	835.1	830.2	748.7	655.5	424.2	272.8	186.4	216.3	211.3
85°	396.0	414.3	415.9	430.9	374.3	291.1	114.8	108.1	79.9	116.4	121.4
87.5°	119.8	121.4	109.8	119.8	96.5	66.6	21.6	30.0	14.9	28.2	28.2
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°	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9
2.5°	2187.8	2181.1	2169.5	2156.2	2152.8	2136.2	2131.2	2122.9	2117.9	2109.6	2103.0
5°	2167.8	2156.2	2142.9	2127.8	2127.8	2104.6	2094.6	2084.7	2084.7	2069.6	2063.0
7.5°	2187.8	2172.8	2157.8	2144.5	2149.5	2122.9	2112.9	2103.0	2101.2	2086.3	2079.7
10°	2244.4	2229.4	2211.1	2197.8	2192.8	2171.1	2159.4	2144.5	2134.6	2124.6	2114.5
12.5°	2330.9	2310.8	2287.6	2259.3	2247.6	2229.4	2211.1	2191.2	2167.8	2157.8	2142.9
15°	2434.0	2400.8	2369.2	2334.2	2302.6	2284.2	2259.3	2227.7	2196.1	2182.8	2162.8
17.5°	2518.8	2483.9	2439.0	2397.4	2340.8	2325.9	2290.9	2252.6	2201.1	2196.1	2166.2
20°	2590.4	2537.1	2482.3	2432.4	2345.8	2337.5	2294.3	2249.4	2176.1	2176.1	2139.5
22.5°	2630.3	2557.2	2492.2	2425.7	2317.6	2310.8	2261.0	2207.7	2117.9	2121.2	2076.3
25°	2637.0	2548.8	2467.3	2387.5	2262.7	2251.0	2187.8	2129.6	2031.4	2024.7	1978.2
27.5°	2610.4	2507.3	2412.4	2315.9	2181.1	2156.2	2086.3	2016.4	1919.9	1903.3	1853.4
30°	2548.8	2427.4	2320.9	2209.4	2068.0	2028.1	1954.9	1883.4	1785.2	1763.6	1716.9
32.5°	2450.7	2312.6	2194.4	2082.9	1926.6	1876.7	1803.5	1732.0	1637.1	1620.5	1577.2
35°	2320.9	2166.2	2041.4	1923.2	1766.8	1715.3	1645.4	1582.2	1495.7	1489.0	1459.0
37.5°	2157.8	1996.5	1863.4	1750.3	1602.1	1575.5	1504.0	1457.4	1385.9	1392.5	1377.5
40°	1973.2	1808.5	1682.0	1582.2	1454.1	1430.8	1387.5	1352.6	1291.1	1309.4	1311.0
42.5°	1786.8	1622.1	1507.3	1417.5	1307.6	1292.7	1262.7	1242.8	1196.2	1232.9	1247.8
45°	1575.5	1422.5	1324.3	1256.1	1174.6	1174.6	1159.6	1158.0	1126.4	1177.9	1192.9
47.5°	1370.9	1251.1	1182.9	1141.3	1084.7	1111.3	1106.3	1119.7	1096.4	1149.6	1162.9
50°	1216.2	1133.0	1091.4	1071.4	1031.5	1073.1	1083.1	1101.4	1081.5	1128.0	1137.9
52.5°	1118.0	1063.2	1039.8	1034.8	1006.6	1058.1	1074.7	1091.4	1068.1	1111.3	1109.7
55°	1063.2	1026.5	1018.1	1028.2	1006.6	1056.5	1073.1	1084.7	1064.8	1094.8	1093.0
57.5°	1043.1	1023.2	1028.2	1043.1	1028.2	1069.8	1078.1	1091.4	1071.4	1084.7	1091.4
60°	1041.5	1041.5	1061.4	1081.5	1071.4	1101.4	1106.3	1104.7	1086.4	1088.1	1091.4
62.5°	1031.5	1056.5	1089.7	1121.4	1118.0	1154.6	1158.0	1136.3	1121.4	1104.7	1099.7
65°	999.9	1041.5	1089.7	1133.0	1139.7	1196.2	1202.9	1181.2	1171.3	1142.9	1121.4
67.5°	930.0	983.3	1039.8	1093.0	1104.7	1181.2	1196.2	1204.5	1209.5	1191.2	1162.9
70°	811.9	866.7	925.1	986.5	1003.2	1088.1	1119.7	1158.0	1187.9	1214.5	1204.5
72.5°	660.5	710.4	760.4	816.9	841.9	930.0	971.6	1038.2	1084.7	1153.0	1181.2
75°	524.1	554.0	584.0	618.9	638.8	725.4	776.9	856.8	920.0	1014.9	1078.1
77.5°	412.6	427.6	442.5	457.6	465.9	514.1	555.7	635.6	708.7	828.5	921.7
80°	317.7	326.1	327.8	332.8	329.4	352.7	367.6	415.9	479.2	597.3	707.1
82.5°	204.6	211.3	214.6	222.9	206.3	236.2	246.2	251.2	284.5	371.0	449.2
85°	114.8	116.4	118.2	121.4	98.2	128.1	129.8	121.4	118.2	153.0	173.0
87.5°	28.2	26.6	28.2	28.2	11.7	26.6	26.6	18.3	13.3	25.0	19.9
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°	2265.9	2265.9	2265.9	2265.9	2265.9	2265.9
2.5°	2087.9	2084.7	2086.3	2078.0	2074.6	2076.3
5°	2054.7	2048.0	2048.0	2043.0	2036.4	2036.4
7.5°	2069.6	2056.3	2051.3	2041.4	2031.4	2033.0
10°	2093.0	2069.6	2053.1	2038.0	2026.4	2026.4
12.5°	2107.9	2066.4	2041.4	2021.5	2008.1	2008.1
15°	2111.3	2048.0	2011.4	1989.8	1976.4	1976.4
17.5°	2091.3	2011.4	1964.9	1936.5	1921.6	1924.9
20°	2041.4	1943.2	1888.3	1858.4	1843.4	1845.1
22.5°	1963.1	1850.0	1786.8	1751.9	1736.9	1736.9
25°	1856.7	1733.6	1665.4	1637.1	1623.8	1623.8
27.5°	1735.2	1608.8	1549.0	1527.3	1519.0	1519.0
30°	1598.9	1494.0	1450.7	1435.8	1422.5	1422.5
32.5°	1484.0	1409.1	1394.2	1374.2	1339.2	1337.6
35°	1392.5	1384.3	1372.6	1312.7	1262.7	1256.1
37.5°	1342.6	1392.5	1319.3	1216.2	1176.3	1174.6
40°	1316.0	1362.6	1236.1	1186.2	1181.2	1181.2
42.5°	1252.8	1286.1	1231.1	1202.9	1202.9	1204.5
45°	1186.2	1214.5	1242.8	1217.8	1226.1	1227.8
47.5°	1139.7	1196.2	1242.8	1221.2	1237.8	1247.8
50°	1096.4	1179.6	1217.8	1217.8	1236.1	1237.8
52.5°	1086.4	1156.2	1194.5	1212.8	1214.5	1206.2
55°	1088.1	1137.9	1176.3	1199.5	1189.6	1189.6
57.5°	1086.4	1128.0	1161.3	1169.5	1174.6	1174.6
60°	1088.1	1114.7	1141.3	1137.9	1154.6	1154.6
62.5°	1093.0	1096.4	1109.7	1106.3	1131.3	1131.3
65°	1104.7	1073.1	1064.8	1068.1	1098.0	1096.4
67.5°	1126.4	1041.5	1014.9	1016.5	1059.8	1053.1
70°	1158.0	998.2	958.3	948.3	1021.5	1009.9
72.5°	1167.9	948.3	885.1	875.1	918.4	885.1
75°	1121.4	908.4	806.9	773.7	755.3	745.3
77.5°	999.9	883.4	725.4	655.5	627.2	620.5
80°	828.5	831.9	618.9	535.7	622.3	620.5
82.5°	625.5	718.7	495.8	464.2	450.9	376.0
85°	302.8	540.7	380.9	319.5	191.3	181.4
87.5°	26.6	226.3	219.6	143.1	64.9	61.6
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)