

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: P270541

Luminaire Tested: **NAV-AF-04-D-UNV-T2R-7027**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P270541
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-7027
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 2700K, 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: 22211.9 lumens
Efficiency: N/A
Efficacy: 98.7 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short - Semi-Cutoff
BUG Rating: B2 - U0 - G3

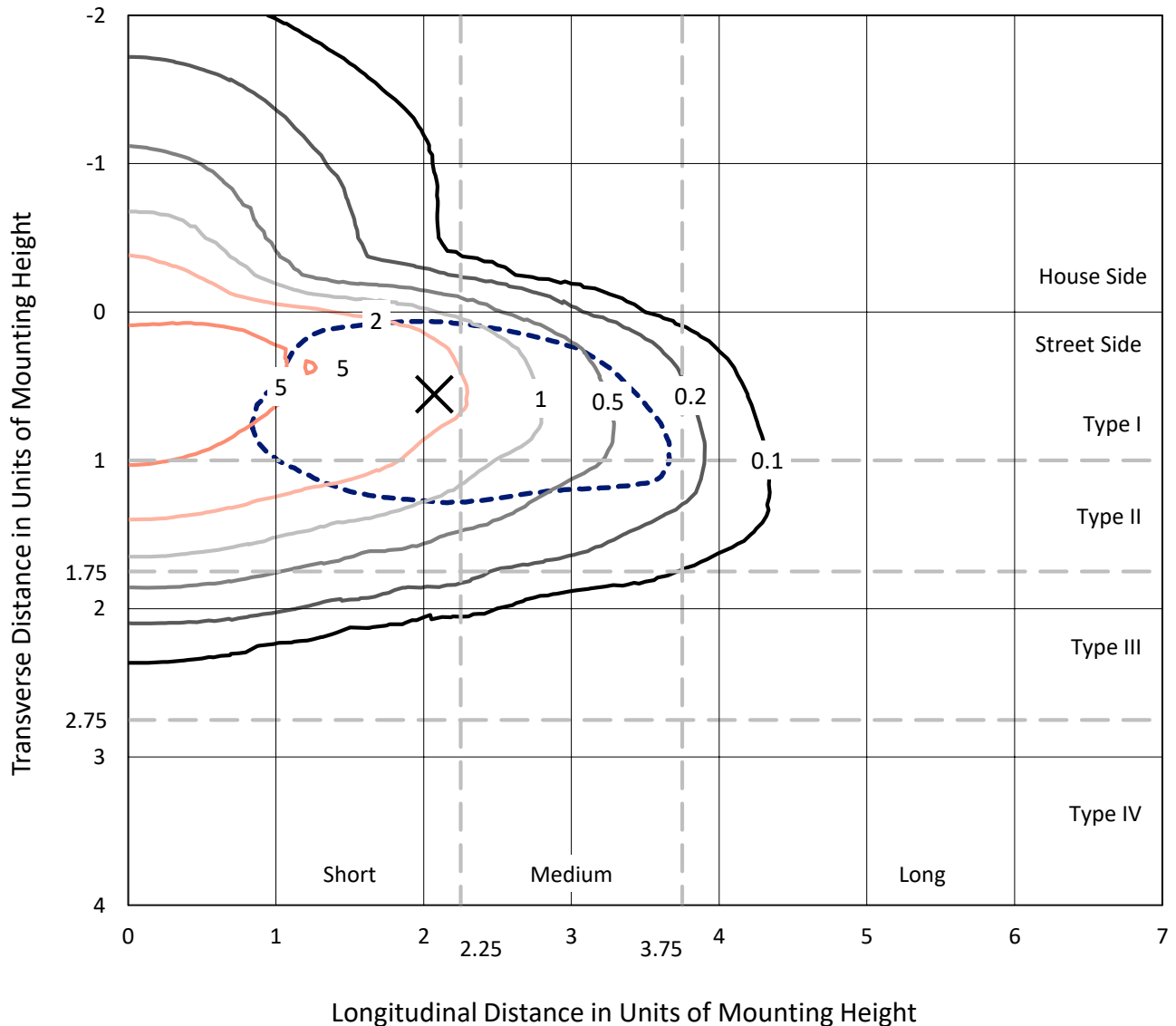
Input Watts (W): 225
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

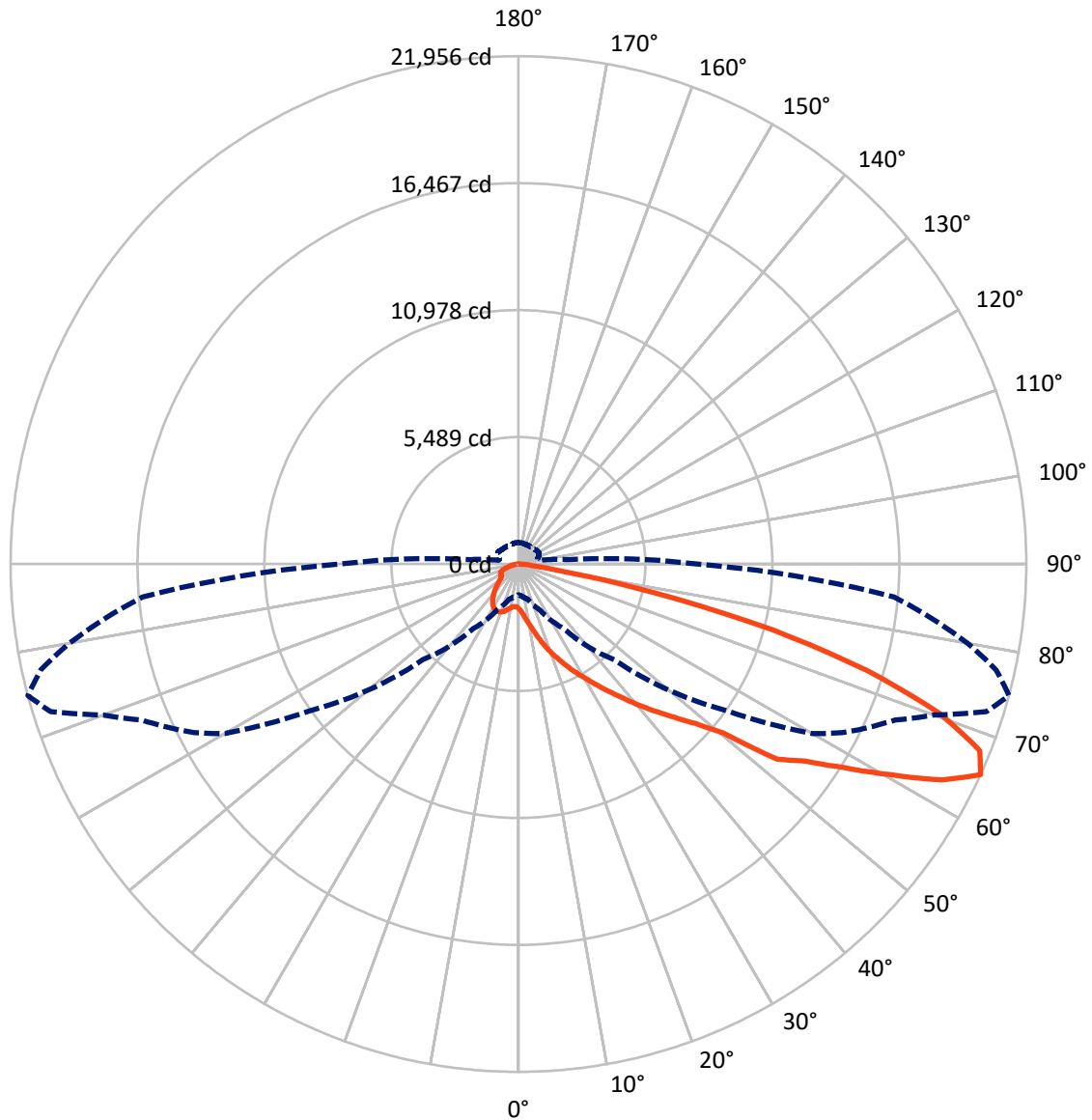
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8.8 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	3337.7	0.0	3337.7
	% Fixture	15.0	0.0	15.0
Street Side	Lumens	18874.2	0.0	18874.2
	% Fixture	85.0	0.0	85.0
Total	Lumens	22211.9	0.0	22211.9
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	227.2	1.0
10°-20°	867.8	3.9
20°-30°	1751.3	7.9
30°-40°	2974.2	13.4
40°-50°	4148.3	18.7
50°-60°	5084.3	22.9
60°-70°	4783.6	21.5
70°-80°	2097.6	9.4
80°-90°	277.5	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°	22211.9	100.0
0°-180°	22211.9	100.0



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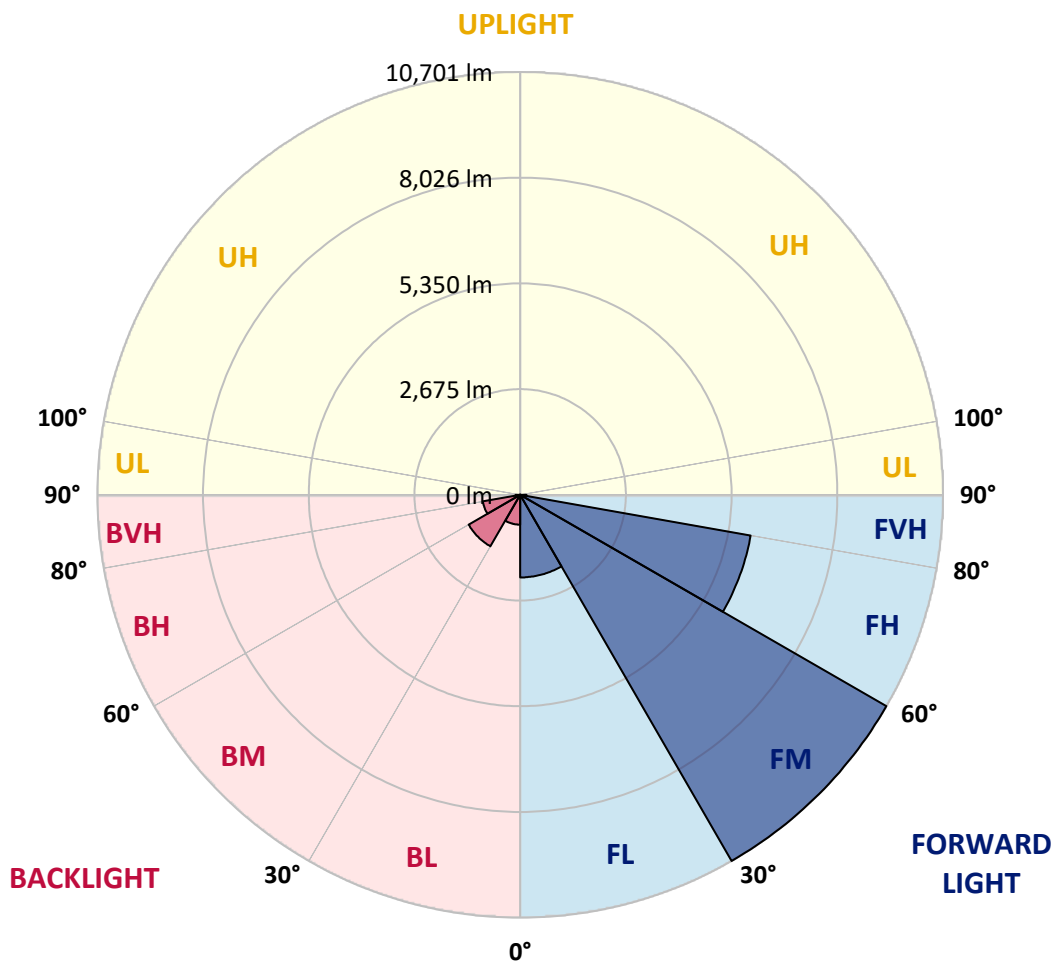
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	2090.7	9.4			
FM (30°-60°)	10700.7	48.2			
FH (60°-80°)	5921.9	26.7			G3/7500
FVH (80°-90°)	160.9	0.7			G2/225
BL (0°-30°)	755.6	3.4	B2/1000		
BM (30°-60°)	1506.1	6.8	B2/2500		
BH (60°-80°)	959.3	4.3	B2/1000		G2/1000
BVH (80°-90°)	116.7	0.5			G2/225
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-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°	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4
2.5°	2423.3	2395.1	2397.8	2358.3	2300.4	2236.8	2184.5	2156.2	2132.2	2125.2	2085.7
5°	3169.4	3134.0	3121.3	3030.9	2895.2	2734.3	2574.5	2512.3	2461.4	2430.4	2354.1
7.5°	3779.8	3761.5	3744.4	3661.1	3526.8	3320.6	3063.4	2971.6	2886.9	2793.5	2701.7
10°	4195.3	4188.2	4181.2	4123.2	4011.6	3832.1	3555.1	3454.8	3348.8	3230.1	3110.0
12.5°	4509.0	4509.0	4514.6	4466.6	4398.7	4260.2	4008.7	3915.4	3808.1	3683.7	3546.7
15°	4719.4	4725.2	4754.8	4768.9	4733.6	4644.5	4424.2	4342.1	4240.4	4117.6	3981.8
17.5°	4859.3	4870.7	4914.4	4961.1	5006.3	4975.3	4811.3	4735.1	4643.2	4530.2	4403.0
20°	5184.4	5170.3	5171.6	5157.4	5224.0	5248.0	5157.4	5093.8	5020.4	4917.3	4801.4
22.5°	5866.8	5840.1	5770.7	5594.1	5513.5	5505.2	5451.5	5417.5	5360.9	5296.0	5180.0
25°	6757.1	6726.0	6588.9	6297.7	6057.6	5835.7	5736.8	5715.6	5678.9	5635.1	5551.7
27.5°	7676.9	7643.0	7466.4	7098.9	6785.3	6337.4	6029.3	6001.0	5967.1	5948.8	5909.2
30°	8486.6	8449.8	8276.1	7903.0	7524.4	6990.3	6423.6	6324.6	6266.8	6272.3	6249.8
32.5°	9197.2	9164.8	8969.8	8589.8	8205.4	7686.7	6935.1	6781.0	6651.1	6603.0	6620.0
35°	9793.6	9763.9	9550.6	9167.7	8780.5	8349.4	7593.6	7361.8	7149.9	7017.0	7001.5
37.5°	10144.0	10127.1	9977.3	9652.3	9268.0	8951.4	8331.2	8074.0	7761.6	7568.1	7483.3
40°	10124.3	10142.7	10117.3	9970.2	9672.1	9441.7	9099.8	8845.5	8540.2	8252.0	8079.6
42.5°	9836.0	9861.5	9975.9	10052.2	9971.6	9831.8	9771.0	9581.6	9307.5	9002.4	8763.5
45°	9440.4	9462.9	9611.3	9886.8	10117.3	10156.7	10358.9	10264.2	10032.5	9772.4	9509.5
47.5°	8834.1	8877.9	9050.3	9488.3	10036.7	10418.2	10852.0	10895.7	10761.5	10546.7	10300.9
50°	7956.6	8014.6	8256.2	8879.3	9731.3	10686.6	11585.4	11752.0	11698.4	11480.8	11232.0
52.5°	7058.1	7116.0	7438.1	8100.8	9239.6	10796.9	12307.4	12734.2	13042.1	13266.8	13310.5
55°	6122.6	6187.5	6540.9	7303.8	8584.1	10657.0	12823.1	13307.9	13620.0	13854.6	13949.3
57.5°	5067.1	5140.6	5482.4	6254.0	7657.2	10094.6	13396.9	14083.4	14548.4	14910.2	15113.7
60°	3856.2	3948.1	4302.6	5079.7	6439.1	9017.8	13652.5	14668.6	15407.5	15950.1	16272.3
62.5°	2444.5	2537.8	2906.6	3713.5	5053.0	7546.9	12929.0	14411.2	15671.7	16474.3	17065.0
65°	1334.0	1374.9	1579.8	2187.4	3406.8	5855.5	11095.0	12842.9	14658.6	15796.1	16703.3
67.5°	1000.4	1006.0	1027.2	1175.6	1814.2	3953.6	8674.6	10275.4	12291.8	13755.7	14839.6
70°	876.0	876.0	878.9	880.2	984.9	2142.1	5876.7	7350.6	9198.7	10679.6	12026.1
72.5°	785.7	777.2	774.2	757.5	771.6	1097.9	3199.0	4523.1	6081.6	7743.3	8999.5
75°	678.2	676.9	676.9	659.9	668.3	772.9	1387.6	2170.3	3378.5	4925.8	6162.2
77.5°	586.5	576.5	577.9	568.0	594.9	592.1	658.5	894.4	1471.0	2587.2	3613.1
80°	483.3	476.2	480.5	474.8	517.2	438.1	443.8	546.9	730.5	1134.6	1599.5
82.5°	357.4	360.3	387.2	384.4	435.1	295.4	324.9	408.4	491.7	565.3	614.7
85°	209.1	213.3	278.4	292.5	319.3	155.4	199.2	243.0	274.2	303.7	316.6
87.5°	22.5	29.6	155.4	159.7	142.7	46.6	80.6	101.8	108.9	115.9	101.8
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°	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4
2.5°	2072.8	2054.6	2034.8	2023.4	2003.7	1986.7	1955.6	1930.2	1901.9	1882.0	1873.7
5°	2315.9	2272.2	2225.6	2191.5	2149.1	2112.5	2041.8	1957.0	1930.2	1873.7	1859.5
7.5°	2632.5	2553.3	2474.2	2409.2	2335.8	2275.0	2156.2	2003.7	1983.8	1893.4	1873.7
10°	3004.0	2888.2	2770.9	2670.7	2563.3	2470.0	2294.7	2079.9	2058.7	1942.9	1923.1
12.5°	3419.5	3278.2	3127.0	2977.3	2850.1	2718.6	2479.9	2198.6	2164.7	2027.7	2000.9
15°	3847.6	3695.1	3519.7	3339.0	3182.1	3008.3	2707.3	2354.1	2291.9	2130.8	2094.0
17.5°	4270.2	4104.9	3921.1	3719.1	3535.4	3327.6	2953.2	2527.9	2420.6	2232.6	2185.9
20°	4678.6	4510.3	4316.7	4119.0	3890.0	3652.7	3204.8	2698.9	2534.9	2317.4	2256.6
22.5°	5050.1	4906.1	4712.4	4484.9	4253.1	3986.0	3460.5	2869.8	2635.3	2382.3	2304.6
25°	5441.6	5310.2	5118.0	4898.9	4629.1	4332.3	3724.7	3032.3	2715.8	2417.7	2321.6
27.5°	5837.1	5724.1	5543.3	5312.9	5023.2	4694.1	3993.1	3182.1	2780.9	2428.9	2313.0
30°	6259.7	6172.1	6005.3	5748.2	5455.6	5091.1	4285.6	3329.1	2821.8	2413.4	2275.0
32.5°	6659.6	6656.7	6508.3	6241.2	5926.2	5524.8	4593.8	3477.3	2843.0	2369.5	2208.6
35°	7075.1	7132.9	7021.2	6766.9	6434.9	5989.8	4934.2	3635.7	2844.5	2291.9	2122.3
37.5°	7546.9	7650.1	7600.6	7358.9	7010.0	6519.7	5334.1	3813.8	2835.9	2184.5	1996.7
40°	8083.8	8225.2	8223.8	8020.2	7647.2	7113.0	5799.0	4013.0	2816.1	2050.3	1848.3
42.5°	8698.5	8866.7	8913.3	8712.7	8335.4	7761.6	6331.8	4231.9	2785.0	1917.4	1691.4
45°	9402.2	9550.6	9638.2	9451.6	9073.1	8468.2	6943.5	4480.7	2746.8	1746.5	1511.9
47.5°	10155.2	10327.8	10459.1	10299.4	9895.3	9273.7	7668.4	4801.4	2732.7	1551.6	1318.4
50°	11089.3	11267.4	11551.3	11479.4	11257.5	10757.3	9201.6	5558.8	2738.5	1366.4	1155.8
52.5°	13406.7	13815.0	14173.9	14014.3	13487.2	12629.5	10447.8	5979.8	2619.7	1215.1	1042.8
55°	14106.2	14569.6	15099.5	15033.0	14527.2	13662.4	11432.6	6331.8	2505.3	1104.9	969.4
57.5°	15329.8	15876.6	16617.0	16603.0	15982.6	15009.1	12700.1	6752.7	2455.8	1041.3	932.6
60°	16625.6	17322.1	18345.1	18504.8	17830.8	16817.7	14198.0	7270.0	2463.0	1006.0	911.4
62.5°	17572.3	18593.8	20081.8	20559.4	19765.2	18649.0	15752.3	7787.1	2420.6	965.0	886.0
65°	17630.1	19101.1	21212.1	21955.5	21151.4	19717.2	16300.6	7685.4	2166.2	910.1	844.9
67.5°	16217.2	18133.2	20697.8	21513.1	20690.8	19058.7	15339.6	6719.0	1760.6	814.0	774.2
70°	13507.0	15731.1	18393.2	19301.8	18622.1	16970.3	13350.3	5366.7	1315.5	686.8	668.3
72.5°	10437.9	12512.2	14929.9	15770.6	15250.6	13798.1	10529.8	3911.2	939.6	556.7	542.5
75°	7462.1	9228.4	10983.3	11304.1	10791.2	9457.3	6831.9	2443.1	658.5	456.3	436.7
77.5°	4620.5	5769.4	6399.5	5986.9	5332.7	4432.6	2780.9	1206.8	438.1	371.5	351.9
80°	2050.3	2406.4	2246.8	2002.2	1581.1	1299.9	849.2	535.5	282.5	286.9	275.5
82.5°	689.5	729.2	709.3	705.1	635.9	556.7	360.3	231.8	158.2	183.8	179.4
85°	336.2	351.9	353.3	366.0	317.9	247.3	97.5	91.8	67.8	99.0	103.1
87.5°	101.8	103.1	93.2	101.8	81.9	56.6	18.3	25.4	12.8	24.1	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):

	105°	107.5°	110°	112.5°	115°	117.5°	120°	122.5°	125°	127.5°	130°
0°	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4
2.5°	1858.1	1852.5	1842.6	1831.3	1828.4	1814.2	1810.1	1803.0	1798.8	1791.7	1786.0
5°	1841.2	1831.3	1820.0	1807.2	1807.2	1787.4	1779.1	1770.5	1770.5	1757.9	1752.1
7.5°	1858.1	1845.4	1832.7	1821.4	1825.6	1803.0	1794.5	1786.0	1784.7	1771.9	1766.2
10°	1906.2	1893.4	1877.8	1866.6	1862.4	1844.0	1834.1	1821.4	1812.9	1804.4	1795.9
12.5°	1979.7	1962.6	1942.9	1918.9	1909.0	1893.4	1877.8	1861.0	1841.2	1832.7	1820.0
15°	2067.2	2039.1	2012.2	1982.5	1955.6	1940.1	1918.9	1892.0	1865.2	1853.9	1836.9
17.5°	2139.4	2109.6	2071.5	2036.2	1988.0	1975.5	1945.6	1913.2	1869.5	1865.2	1839.8
20°	2200.0	2154.9	2108.2	2065.8	1992.4	1985.3	1948.6	1910.3	1848.3	1848.3	1817.1
22.5°	2233.9	2171.8	2116.6	2060.2	1968.4	1962.6	1920.2	1875.0	1798.8	1801.6	1763.5
25°	2239.7	2164.7	2095.4	2027.7	1921.7	1911.9	1858.1	1808.6	1725.3	1719.6	1680.1
27.5°	2217.0	2129.4	2048.9	1966.8	1852.5	1831.3	1771.9	1712.6	1630.7	1616.5	1574.1
30°	2164.7	2061.6	1971.2	1876.5	1756.4	1722.5	1660.2	1599.5	1516.2	1497.8	1458.2
32.5°	2081.4	1964.1	1863.8	1769.1	1636.3	1594.0	1531.7	1471.0	1390.3	1376.3	1339.6
35°	1971.2	1839.8	1733.8	1633.5	1500.6	1456.8	1397.5	1343.8	1270.4	1264.6	1239.2
37.5°	1832.7	1695.6	1582.5	1486.4	1360.8	1338.1	1277.4	1237.9	1177.0	1182.7	1170.0
40°	1675.9	1535.9	1428.6	1343.8	1235.0	1215.1	1178.4	1148.8	1096.6	1112.0	1113.4
42.5°	1517.5	1377.7	1280.2	1203.9	1110.7	1097.9	1072.4	1055.5	1016.0	1047.1	1059.8
45°	1338.1	1208.1	1124.8	1066.8	997.6	997.6	984.9	983.5	956.7	1000.4	1013.1
47.5°	1164.4	1062.5	1004.7	969.4	921.3	943.8	939.6	950.9	931.2	976.4	987.6
50°	1033.0	962.3	927.0	910.1	876.0	911.4	919.9	935.5	918.4	958.0	966.4
52.5°	949.6	902.9	883.2	878.9	854.8	898.7	912.8	927.0	907.2	943.8	942.5
55°	902.9	871.9	864.8	873.2	854.8	897.2	911.4	921.3	904.4	929.7	928.4
57.5°	886.0	869.0	873.2	886.0	873.2	908.5	915.6	927.0	910.1	921.3	927.0
60°	884.6	884.6	901.4	918.4	910.1	935.5	939.6	938.2	922.6	924.0	927.0
62.5°	876.0	897.2	925.6	952.4	949.6	980.6	983.5	965.0	952.4	938.2	934.0
65°	849.2	884.6	925.6	962.3	968.0	1016.0	1021.6	1003.2	994.8	970.8	952.4
67.5°	789.9	835.1	883.2	928.4	938.2	1003.2	1016.0	1023.0	1027.2	1011.8	987.6
70°	689.5	736.3	785.7	837.8	852.0	924.0	950.9	983.5	1008.8	1031.6	1023.0
72.5°	561.0	603.3	645.7	693.9	715.1	789.9	825.3	881.7	921.3	979.2	1003.2
75°	445.1	470.5	496.0	525.7	542.5	616.1	659.9	727.6	781.3	862.0	915.6
77.5°	350.3	363.2	375.9	388.5	395.7	436.7	472.0	539.8	602.0	703.7	782.9
80°	269.9	276.9	278.4	282.5	279.8	299.6	312.3	353.3	406.9	507.3	600.5
82.5°	173.8	179.4	182.3	189.4	175.2	200.6	209.1	213.3	241.6	315.0	381.5
85°	97.5	99.0	100.3	103.1	83.4	108.9	110.2	103.1	100.3	130.1	147.0
87.5°	24.1	22.5	24.1	24.1	9.9	22.5	22.5	15.5	11.3	21.2	17.0
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):

	135°	145°	155°	165°	175°	180°
0°	1924.4	1924.4	1924.4	1924.4	1924.4	1924.4
2.5°	1773.3	1770.5	1771.9	1764.9	1762.0	1763.5
5°	1745.0	1739.4	1739.4	1735.2	1729.5	1729.5
7.5°	1757.9	1746.5	1742.3	1733.8	1725.3	1726.7
10°	1777.6	1757.9	1743.7	1730.9	1721.1	1721.1
12.5°	1790.3	1755.0	1733.8	1716.8	1705.5	1705.5
15°	1793.0	1739.4	1708.3	1690.0	1678.7	1678.7
17.5°	1776.2	1708.3	1668.8	1644.7	1632.0	1634.8
20°	1733.8	1650.4	1603.7	1578.3	1565.7	1567.1
22.5°	1667.3	1571.2	1517.5	1488.0	1475.1	1475.1
25°	1577.0	1472.3	1414.4	1390.3	1379.1	1379.1
27.5°	1473.8	1366.4	1315.5	1297.2	1290.1	1290.1
30°	1357.9	1268.9	1232.1	1219.4	1208.1	1208.1
32.5°	1260.4	1196.8	1184.1	1167.2	1137.4	1136.0
35°	1182.7	1175.6	1165.7	1114.8	1072.4	1066.8
37.5°	1140.3	1182.7	1120.5	1033.0	999.0	997.6
40°	1117.8	1157.2	1049.8	1007.4	1003.2	1003.2
42.5°	1064.0	1092.2	1045.6	1021.6	1021.6	1023.0
45°	1007.4	1031.6	1055.5	1034.3	1041.3	1042.8
47.5°	968.0	1016.0	1055.5	1037.2	1051.2	1059.8
50°	931.2	1001.8	1034.3	1034.3	1049.8	1051.2
52.5°	922.6	982.0	1014.5	1030.0	1031.6	1024.4
55°	924.0	966.4	999.0	1018.8	1010.4	1010.4
57.5°	922.6	958.0	986.2	993.3	997.6	997.6
60°	924.0	946.8	969.4	966.4	980.6	980.6
62.5°	928.4	931.2	942.5	939.6	960.8	960.8
65°	938.2	911.4	904.4	907.2	932.6	931.2
67.5°	956.7	884.6	862.0	863.4	900.1	894.4
70°	983.5	847.8	814.0	805.4	867.7	857.7
72.5°	992.0	805.4	751.7	743.3	780.0	751.7
75°	952.4	771.6	685.2	657.0	641.5	633.0
77.5°	849.2	750.4	616.1	556.7	532.8	527.0
80°	703.7	706.4	525.7	455.0	528.5	527.0
82.5°	531.3	610.4	421.0	394.3	382.9	319.3
85°	257.2	459.3	323.6	271.3	162.6	154.0
87.5°	22.5	192.1	186.5	121.5	55.1	52.3
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)