

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: P196293

Luminaire Tested: **NAV-AF-03-D-UNV-T2R-1200**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196293
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-03-D-UNV-T2R-1200
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 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: 21300.9 lumens
Efficiency: N/A
Efficacy: 111.5 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type II - Short - Semi-Cutoff
BUG Rating: B2 - U0 - G3

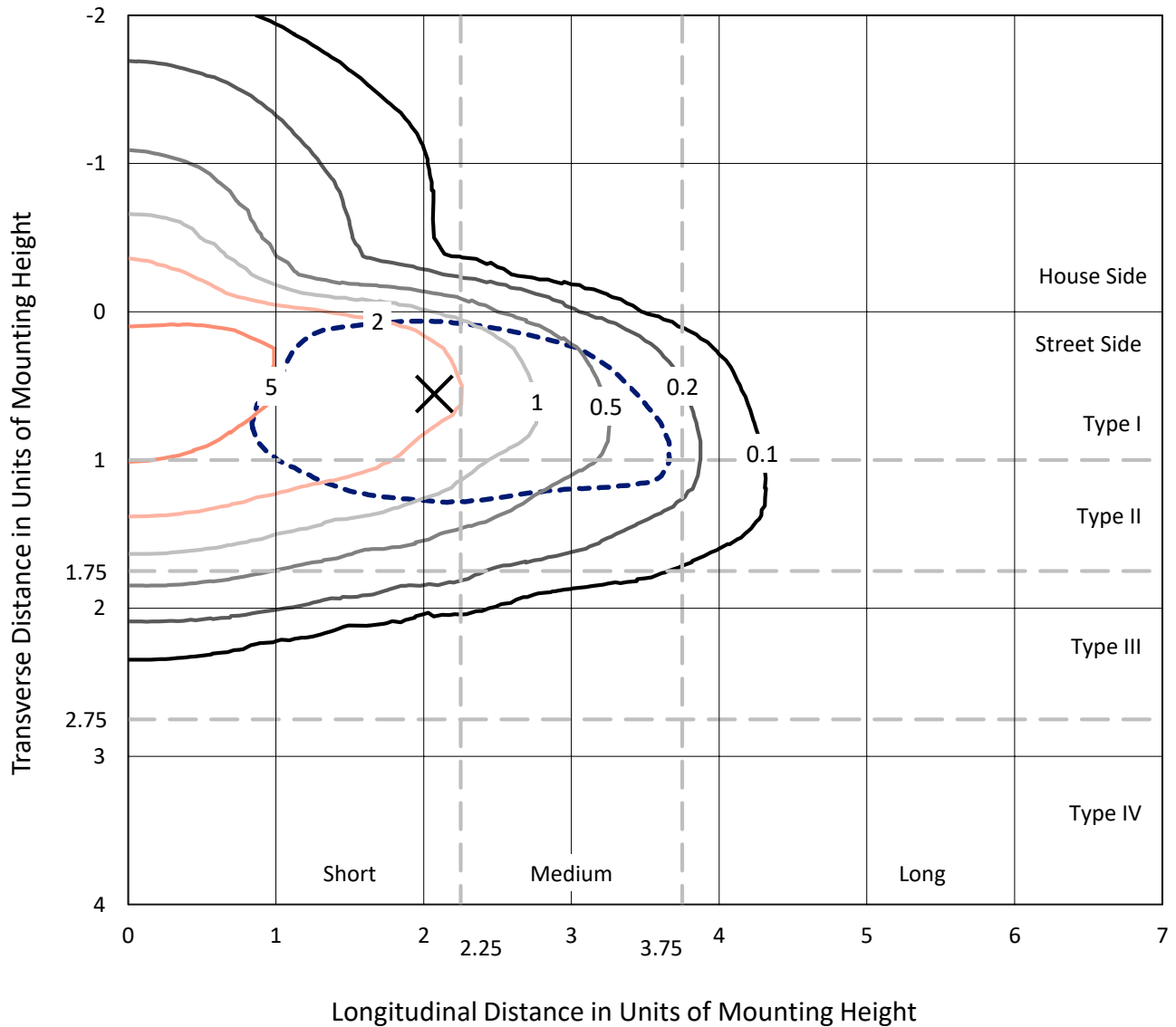
Input Watts (W): 191
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

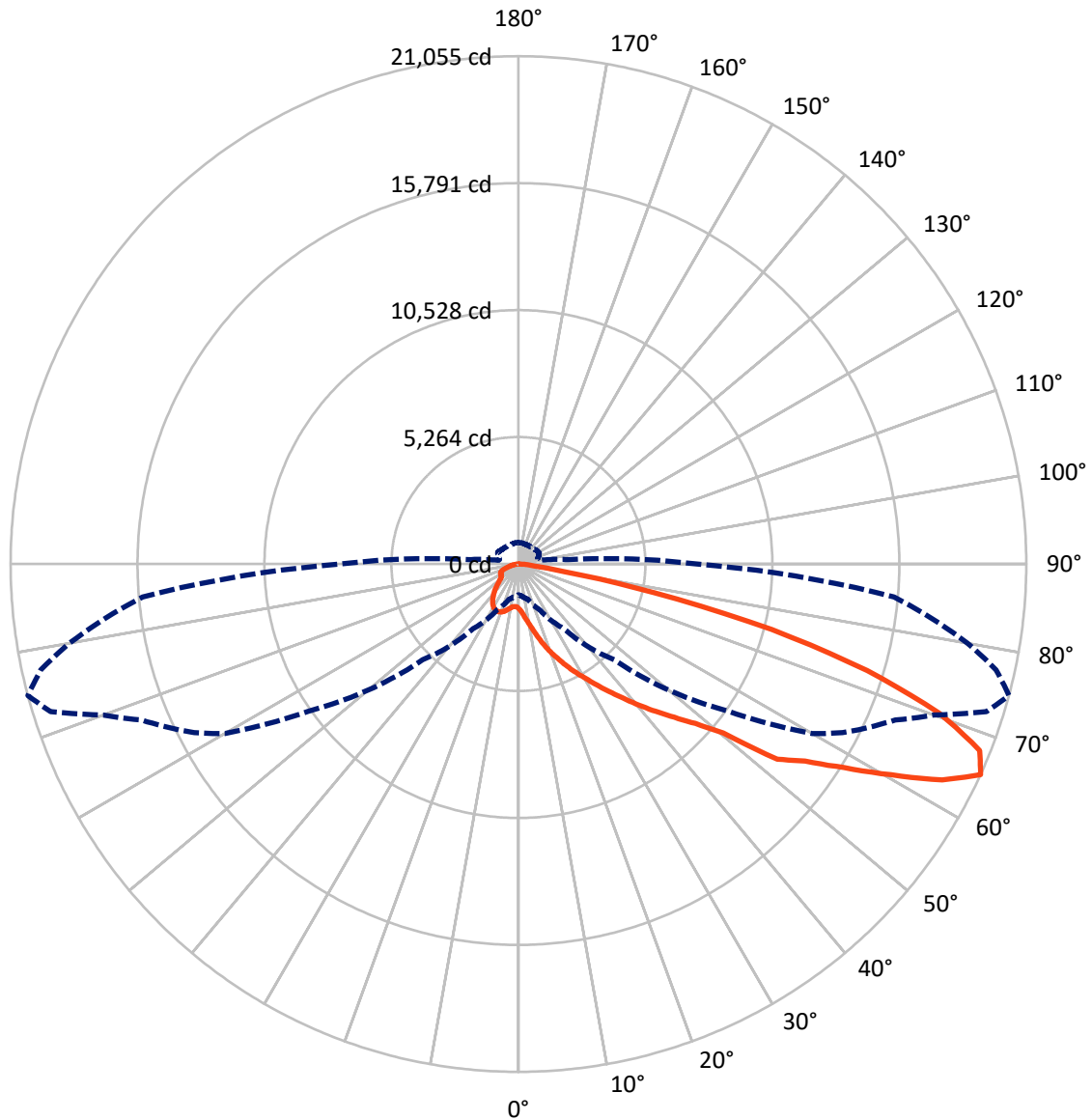
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8.5 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	3200.8	0.0	3200.8
	% Fixture	15.0	0.0	15.0
Street Side	Lumens	18100.1	0.0	18100.1
	% Fixture	85.0	0.0	85.0
Total	Lumens	21300.9	0.0	21300.9
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	217.9	1.0
10°-20°	832.2	3.9
20°-30°	1679.5	7.9
30°-40°	2852.2	13.4
40°-50°	3978.2	18.7
50°-60°	4875.8	22.9
60°-70°	4587.4	21.5
70°-80°	2011.5	9.4
80°-90°	266.2	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°	21300.9	100.0
0°-180°	21300.9	100.0



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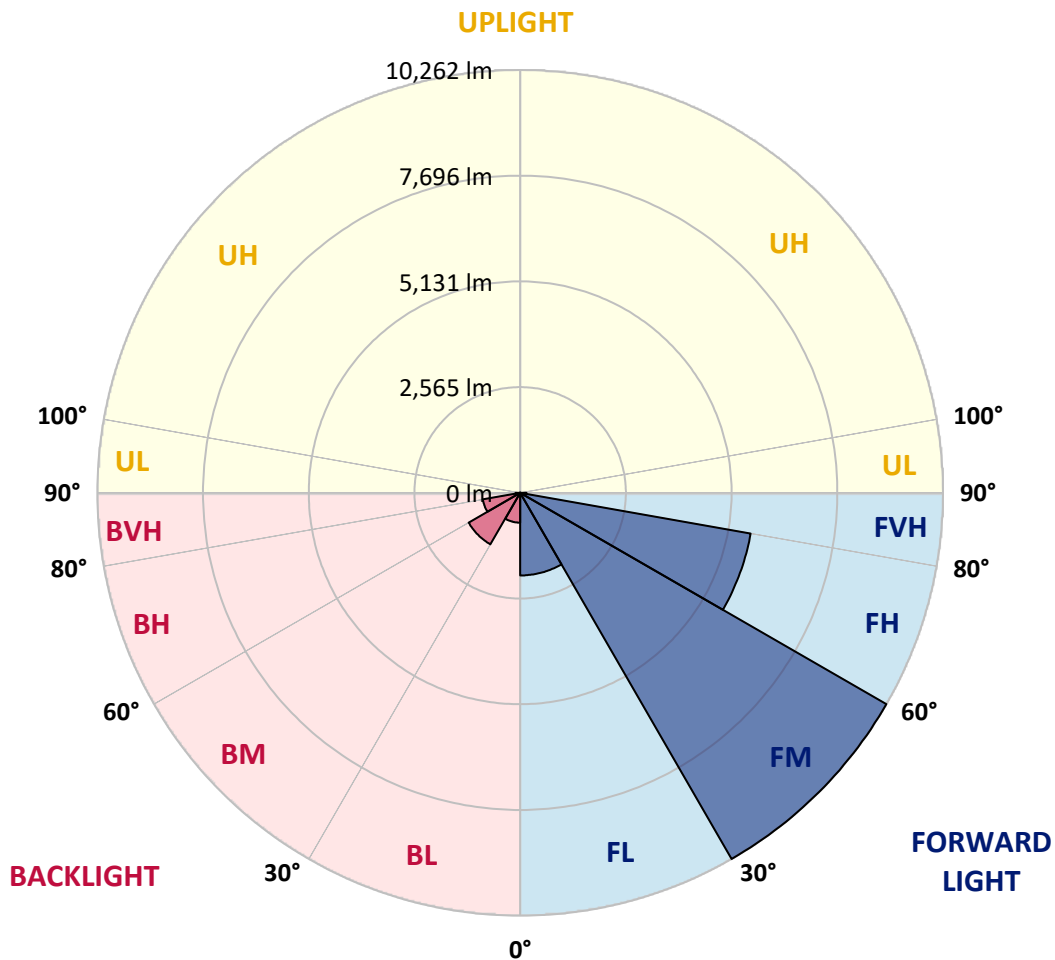
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	2005.0	9.4			
FM (30°-60°)	10261.8	48.2			
FH (60°-80°)	5679.0	26.7			G3/7500
FVH (80°-90°)	154.3	0.7			G2/225
BL (0°-30°)	724.6	3.4	B2/1000		
BM (30°-60°)	1444.4	6.8	B2/2500		
BH (60°-80°)	920.0	4.3	B2/1000		G2/1000
BVH (80°-90°)	111.9	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°	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6
2.5°	2323.9	2296.8	2299.5	2261.6	2206.0	2145.0	2094.9	2067.8	2044.8	2038.0	2000.1
5°	3039.4	3005.5	2993.4	2906.6	2776.5	2622.0	2468.9	2409.3	2360.6	2330.7	2257.6
7.5°	3624.8	3607.1	3590.9	3511.0	3382.2	3184.3	2937.8	2849.7	2768.4	2679.0	2590.8
10°	4023.2	4016.4	4009.7	3954.1	3847.0	3675.0	3409.3	3313.1	3211.5	3097.7	2982.5
12.5°	4324.0	4324.0	4329.4	4283.3	4218.3	4085.5	3844.4	3754.8	3651.9	3532.7	3401.2
15°	4525.9	4531.4	4559.8	4573.3	4539.4	4454.1	4242.7	4164.1	4066.5	3948.7	3818.6
17.5°	4660.1	4670.9	4712.9	4757.6	4801.0	4771.1	4614.0	4540.8	4452.7	4344.4	4222.3
20°	4971.7	4958.1	4959.6	4946.0	5009.7	5032.7	4946.0	4885.0	4814.5	4715.6	4604.5
22.5°	5626.2	5600.5	5534.1	5364.7	5287.4	5279.3	5227.8	5195.3	5141.1	5078.7	4967.7
25°	6479.9	6450.1	6318.7	6039.5	5809.1	5596.4	5501.5	5481.2	5446.0	5403.9	5324.0
27.5°	7362.1	7329.5	7160.1	6807.8	6507.0	6077.5	5782.0	5754.9	5722.4	5704.8	5666.8
30°	8138.5	8103.3	7936.6	7578.8	7215.7	6703.5	6160.1	6065.3	6009.7	6015.2	5993.5
32.5°	8820.1	8788.9	8601.9	8237.4	7868.8	7371.5	6650.6	6502.9	6378.3	6332.2	6348.4
35°	9391.9	9363.5	9158.9	8791.6	8420.3	8007.0	7282.1	7059.9	6856.6	6729.3	6714.3
37.5°	9728.0	9711.7	9568.1	9256.4	8887.8	8584.3	7989.5	7742.8	7443.4	7257.7	7176.4
40°	9709.0	9726.6	9702.3	9561.3	9275.4	9054.5	8726.6	8482.7	8189.9	7913.5	7748.2
42.5°	9432.6	9457.0	9566.7	9639.9	9562.6	9428.5	9370.2	9188.7	8925.8	8633.1	8404.1
45°	9053.1	9074.8	9217.1	9481.3	9702.3	9740.1	9934.0	9843.1	9621.0	9371.6	9119.6
47.5°	8471.9	8513.8	8679.1	9099.2	9625.0	9990.9	10406.9	10448.8	10320.1	10114.2	9878.4
50°	7630.4	7685.9	7917.6	8515.2	9332.3	10248.3	11110.2	11270.1	11218.6	11009.9	10771.4
52.5°	6768.6	6824.1	7133.0	7768.6	8860.7	10354.0	11802.6	12211.8	12507.2	12722.6	12764.7
55°	5871.4	5933.8	6272.5	7004.3	8232.0	10219.9	12297.2	12761.9	13061.4	13286.4	13377.1
57.5°	4859.2	4929.7	5257.7	5997.5	7343.0	9680.6	12847.3	13505.9	13951.7	14298.6	14493.8
60°	3698.0	3786.0	4126.2	4871.4	6175.0	8648.0	13092.6	14066.9	14775.6	15296.0	15604.9
62.5°	2344.3	2433.7	2787.3	3561.1	4845.7	7237.4	12398.8	13820.3	15029.0	15798.7	16365.1
65°	1279.2	1318.5	1515.0	2097.7	3267.1	5615.4	10639.9	12316.1	14057.4	15148.3	16018.2
67.5°	959.4	964.8	985.1	1127.4	1739.9	3791.5	8318.7	9854.0	11787.7	13191.6	14230.9
70°	840.1	840.1	842.8	844.2	944.5	2054.3	5635.7	7049.1	8821.4	10241.6	11533.0
72.5°	753.4	745.3	742.6	726.3	739.9	1052.9	3067.8	4337.5	5832.1	7425.7	8630.4
75°	650.4	649.1	649.1	632.8	641.0	741.2	1330.7	2081.4	3240.0	4723.8	5909.4
77.5°	562.3	552.9	554.2	544.7	570.5	567.7	631.5	857.7	1410.6	2481.2	3464.9
80°	463.4	456.6	460.7	455.3	495.9	420.0	425.4	524.4	700.5	1088.1	1533.9
82.5°	342.8	345.6	371.3	368.6	417.4	283.3	311.7	391.6	471.6	542.1	589.4
85°	200.5	204.6	267.0	280.5	306.3	149.0	191.1	233.0	262.9	291.3	303.5
87.5°	21.7	28.4	149.0	153.1	136.9	44.7	77.2	97.6	104.3	111.1	97.6
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°	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6
2.5°	1987.9	1970.3	1951.3	1940.4	1921.5	1905.2	1875.4	1851.0	1823.9	1804.9	1796.8
5°	2220.9	2179.0	2134.2	2101.7	2061.0	2025.9	1958.0	1876.8	1851.0	1796.8	1783.3
7.5°	2524.4	2448.6	2372.7	2310.3	2240.0	2181.6	2067.8	1921.5	1902.5	1815.7	1796.8
10°	2880.8	2769.7	2657.3	2561.1	2458.0	2368.6	2200.6	1994.7	1974.3	1863.2	1844.3
12.5°	3279.3	3143.7	2998.8	2855.2	2733.1	2607.1	2378.2	2108.5	2076.0	1944.5	1918.7
15°	3689.8	3543.5	3375.4	3202.0	3051.6	2884.9	2596.2	2257.6	2197.9	2043.4	2008.2
17.5°	4095.0	3936.4	3760.3	3566.5	3390.4	3191.2	2832.0	2424.2	2321.2	2141.0	2096.2
20°	4486.6	4325.3	4139.7	3950.0	3730.5	3502.8	3073.3	2588.2	2430.9	2222.3	2164.1
22.5°	4843.0	4704.8	4519.1	4301.0	4078.7	3822.7	3318.6	2752.1	2527.2	2284.7	2210.1
25°	5218.4	5092.4	4908.0	4698.0	4439.2	4154.6	3571.9	2907.9	2604.4	2318.5	2226.4
27.5°	5597.8	5489.4	5315.9	5095.0	4817.3	4501.5	3829.4	3051.6	2666.7	2329.4	2218.3
30°	6002.9	5918.9	5759.0	5512.4	5231.9	4882.2	4109.9	3192.5	2706.0	2314.4	2181.6
32.5°	6386.4	6383.7	6241.4	5985.3	5683.1	5298.3	4405.3	3334.8	2726.4	2272.5	2117.9
35°	6784.8	6840.4	6733.3	6489.4	6171.0	5744.1	4731.9	3486.5	2727.7	2197.9	2035.3
37.5°	7237.4	7336.3	7288.8	7057.1	6722.4	6252.3	5115.4	3657.4	2719.6	2094.9	1914.7
40°	7752.3	7887.8	7886.4	7691.4	7333.6	6821.3	5561.2	3848.3	2700.6	1966.2	1772.5
42.5°	8341.8	8503.0	8547.7	8355.3	7993.5	7443.4	6072.0	4058.5	2670.8	1838.9	1622.0
45°	9016.6	9158.9	9242.9	9064.0	8700.8	8120.9	6658.8	4296.9	2634.2	1674.9	1449.9
47.5°	9738.8	9904.1	10030.1	9877.0	9489.5	8893.2	7353.9	4604.5	2620.7	1487.9	1264.3
50°	10634.5	10805.2	11077.6	11008.5	10795.8	10316.0	8824.2	5330.8	2626.1	1310.3	1108.5
52.5°	12856.9	13248.4	13592.7	13439.5	12934.1	12111.5	10019.3	5734.7	2512.3	1165.3	1000.0
55°	13527.6	13972.1	14480.2	14416.4	13931.4	13102.1	10963.8	6072.0	2402.5	1059.7	929.6
57.5°	14701.0	15225.5	15935.5	15921.9	15327.1	14393.4	12179.3	6475.8	2355.1	998.7	894.4
60°	15943.6	16611.7	17592.7	17745.8	17099.5	16127.9	13615.7	6971.8	2361.9	964.8	874.0
62.5°	16851.6	17831.3	19258.2	19716.1	18954.6	17884.0	15106.2	7467.7	2321.2	925.5	849.7
65°	16907.1	18317.7	20342.2	21055.0	20283.9	18908.5	15632.0	7370.2	2077.3	872.7	810.3
67.5°	15552.0	17389.4	19848.9	20630.8	19842.2	18277.1	14710.5	6443.4	1688.4	780.5	742.6
70°	12953.0	15085.9	17638.8	18510.1	17858.4	16274.3	12802.6	5146.6	1261.6	658.6	641.0
72.5°	10009.9	11999.1	14317.5	15123.8	14625.1	13232.2	10098.0	3750.9	901.1	533.9	520.4
75°	7156.1	8849.9	10532.9	10840.5	10348.6	9069.4	6551.7	2342.9	631.5	437.7	418.7
77.5°	4431.0	5532.7	6137.1	5741.4	5114.0	4250.9	2666.7	1157.3	420.0	356.4	337.4
80°	1966.2	2307.7	2154.5	1920.1	1516.3	1246.7	814.4	513.5	271.0	275.1	264.2
82.5°	661.2	699.2	680.3	676.2	609.8	533.9	345.6	222.2	151.8	176.2	172.1
85°	322.5	337.4	338.8	351.0	304.8	237.1	93.5	88.1	65.1	94.8	98.9
87.5°	97.6	98.9	89.4	97.6	78.6	54.2	17.6	24.3	12.2	23.0	23.0
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°	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6
2.5°	1781.9	1776.5	1767.0	1756.2	1753.4	1739.9	1735.8	1729.1	1725.0	1718.3	1712.8
5°	1765.6	1756.2	1745.4	1733.1	1733.1	1714.2	1706.0	1697.9	1697.9	1685.7	1680.3
7.5°	1781.9	1769.7	1757.5	1746.7	1750.8	1729.1	1720.9	1712.8	1711.4	1699.2	1693.8
10°	1828.0	1815.7	1800.9	1790.1	1786.0	1768.4	1758.9	1746.7	1738.5	1730.4	1722.2
12.5°	1898.4	1882.2	1863.2	1840.2	1830.7	1815.7	1800.9	1784.6	1765.6	1757.5	1745.4
15°	1982.5	1955.4	1929.6	1901.2	1875.4	1860.5	1840.2	1814.4	1788.6	1777.9	1761.6
17.5°	2051.5	2023.1	1986.6	1952.6	1906.6	1894.4	1866.0	1834.8	1792.7	1788.6	1764.3
20°	2109.8	2066.5	2021.8	1981.1	1910.7	1903.8	1868.6	1832.0	1772.5	1772.5	1742.6
22.5°	2142.4	2082.7	2029.8	1975.7	1887.5	1882.2	1841.5	1798.1	1725.0	1727.7	1691.1
25°	2147.8	2076.0	2009.6	1944.5	1842.8	1833.4	1781.9	1734.5	1654.5	1649.1	1611.1
27.5°	2126.1	2042.1	1964.9	1886.2	1776.5	1756.2	1699.2	1642.3	1563.8	1550.2	1509.6
30°	2076.0	1977.1	1890.3	1799.5	1684.4	1651.9	1592.2	1533.9	1454.0	1436.3	1398.4
32.5°	1996.0	1883.6	1787.3	1696.6	1569.2	1528.5	1468.9	1410.6	1333.4	1319.8	1284.6
35°	1890.3	1764.3	1662.7	1566.4	1439.1	1397.0	1340.2	1288.7	1218.2	1212.8	1188.4
37.5°	1757.5	1626.1	1517.6	1425.5	1304.9	1283.3	1225.0	1187.0	1128.7	1134.1	1122.0
40°	1607.1	1472.9	1369.9	1288.7	1184.4	1165.3	1130.2	1101.6	1051.5	1066.4	1067.8
42.5°	1455.4	1321.1	1227.6	1154.5	1065.1	1052.9	1028.5	1012.2	974.3	1004.1	1016.3
45°	1283.3	1158.6	1078.6	1023.1	956.7	956.7	944.5	943.2	917.4	959.4	971.6
47.5°	1116.6	1019.0	963.4	929.6	883.5	905.2	901.1	912.0	893.0	936.3	947.2
50°	990.5	922.8	888.9	872.7	840.1	874.0	882.2	897.0	880.8	918.7	926.9
52.5°	910.6	865.9	846.9	842.8	819.8	861.8	875.3	888.9	869.9	905.2	903.8
55°	865.9	836.1	829.3	837.4	819.8	860.5	874.0	883.5	867.3	891.6	890.3
57.5°	849.7	833.4	837.4	849.7	837.4	871.3	878.1	888.9	872.7	883.5	888.9
60°	848.2	848.2	864.5	880.8	872.7	897.0	901.1	899.8	884.9	886.2	888.9
62.5°	840.1	860.5	887.6	913.3	910.6	940.4	943.2	925.5	913.3	899.8	895.7
65°	814.4	848.2	887.6	922.8	928.2	974.3	979.7	962.1	954.0	930.9	913.3
67.5°	757.5	800.9	846.9	890.3	899.8	962.1	974.3	981.1	985.1	970.3	947.2
70°	661.2	705.9	753.4	803.5	817.1	886.2	912.0	943.2	967.5	989.2	981.1
72.5°	538.0	578.6	619.3	665.3	685.7	757.5	791.4	845.6	883.5	939.1	962.1
75°	426.9	451.2	475.7	504.1	520.4	590.9	632.8	697.9	749.3	826.5	878.1
77.5°	336.0	348.2	360.5	372.7	379.4	418.7	452.6	517.6	577.3	674.8	750.7
80°	258.8	265.6	267.0	271.0	268.3	287.2	299.4	338.8	390.3	486.5	575.9
82.5°	166.6	172.1	174.8	181.6	168.1	192.4	200.5	204.6	231.7	302.2	365.9
85°	93.5	94.8	96.3	98.9	80.0	104.3	105.7	98.9	96.3	124.7	141.0
87.5°	23.0	21.7	23.0	23.0	9.5	21.7	21.7	14.9	10.8	20.4	16.3
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):

	135°	145°	155°	165°	175°	180°
0°	1845.6	1845.6	1845.6	1845.6	1845.6	1845.6
2.5°	1700.6	1697.9	1699.2	1692.5	1689.7	1691.1
5°	1673.5	1668.1	1668.1	1664.0	1658.6	1658.6
7.5°	1685.7	1674.9	1670.8	1662.7	1654.5	1655.9
10°	1704.6	1685.7	1672.1	1659.9	1650.4	1650.4
12.5°	1716.8	1683.0	1662.7	1646.4	1635.6	1635.6
15°	1719.6	1668.1	1638.3	1620.7	1609.8	1609.8
17.5°	1703.3	1638.3	1600.3	1577.3	1565.1	1567.8
20°	1662.7	1582.7	1538.0	1513.6	1501.4	1502.7
22.5°	1599.0	1506.8	1455.4	1426.9	1414.6	1414.6
25°	1512.2	1412.0	1356.4	1333.4	1322.6	1322.6
27.5°	1413.3	1310.3	1261.6	1243.9	1237.2	1237.2
30°	1302.2	1216.8	1181.6	1169.4	1158.6	1158.6
32.5°	1208.7	1147.8	1135.6	1119.3	1090.9	1089.4
35°	1134.1	1127.4	1117.9	1069.2	1028.5	1023.1
37.5°	1093.5	1134.1	1074.6	990.5	958.0	956.7
40°	1071.8	1109.8	1006.8	966.2	962.1	962.1
42.5°	1020.4	1047.5	1002.7	979.7	979.7	981.1
45°	966.2	989.2	1012.2	992.0	998.7	1000.0
47.5°	928.2	974.3	1012.2	994.6	1008.1	1016.3
50°	893.0	960.8	992.0	992.0	1006.8	1008.1
52.5°	884.9	941.7	972.9	987.9	989.2	982.4
55°	886.2	926.9	958.0	977.0	968.8	968.8
57.5°	884.9	918.7	945.8	952.6	956.7	956.7
60°	886.2	907.9	929.6	926.9	940.4	940.4
62.5°	890.3	893.0	903.8	901.1	921.5	921.5
65°	899.8	874.0	867.3	869.9	894.4	893.0
67.5°	917.4	848.2	826.5	828.0	863.2	857.7
70°	943.2	813.0	780.5	772.4	832.0	822.6
72.5°	951.2	772.4	720.9	712.8	748.0	720.9
75°	913.3	739.9	657.2	630.1	615.2	607.0
77.5°	814.4	719.5	590.9	533.9	510.9	505.4
80°	674.8	677.5	504.1	436.3	506.8	505.4
82.5°	509.5	585.4	403.8	378.1	367.2	306.3
85°	246.6	440.4	310.3	260.1	155.8	147.7
87.5°	21.7	184.3	178.9	116.5	52.9	50.1
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)