

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: P195797

Luminaire Tested: **NAV-AF-05-D-UNV-T2R-7050-600**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P195797
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-7050-600
Description: NAVION ROADWAY AND AREA LUMINAIRE
(5) 70 CRI, 5000K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II
ROADWAY OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20761 lumens
Efficiency: N/A
Efficacy: 128.2 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')
IES Classification: Type II - Short - Semi-Cutoff
BUG Rating: B2 - U0 - G3

Input Watts (W): 162
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

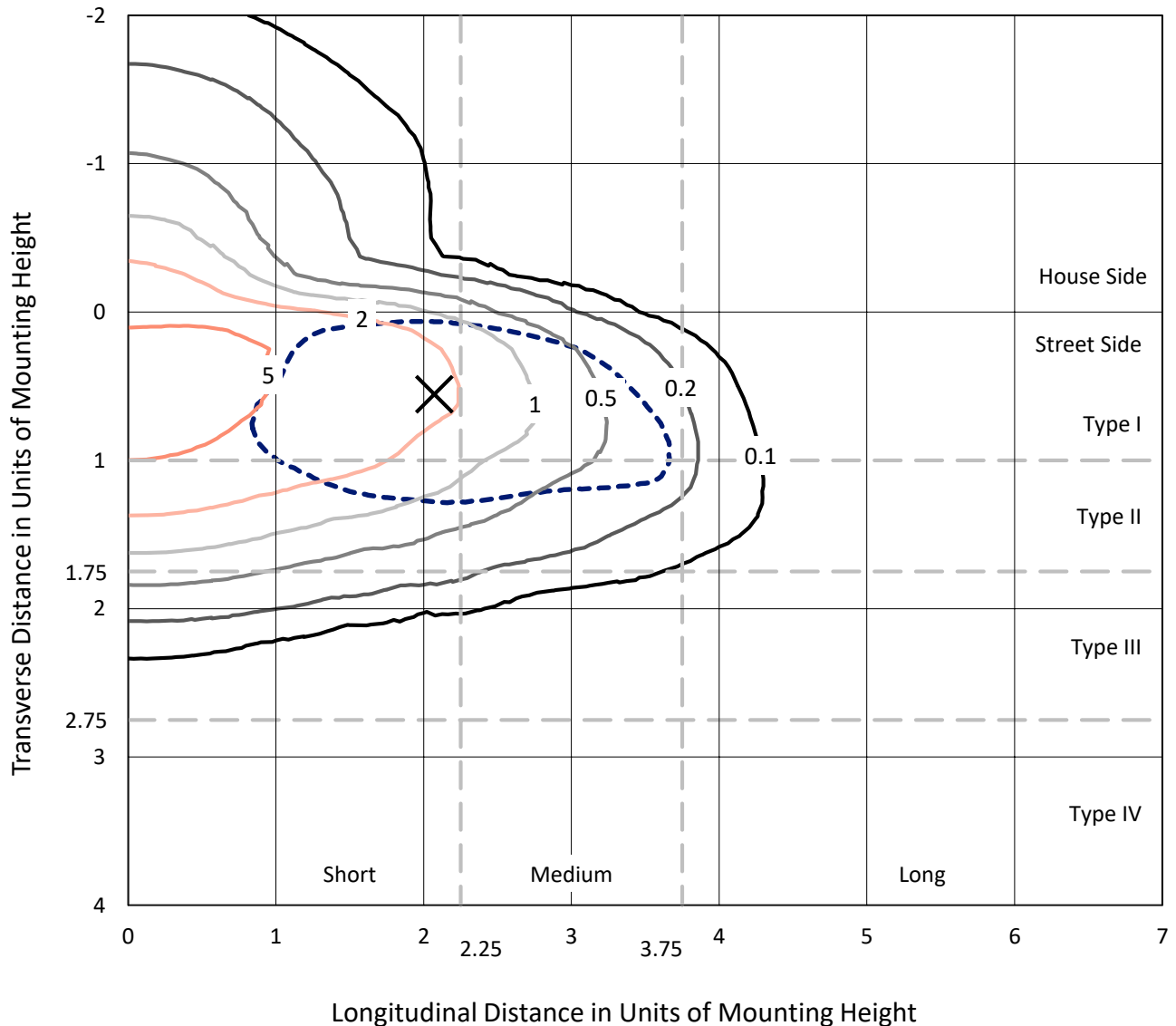


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Iso-Footcandle Lines of Horizontal Illumination

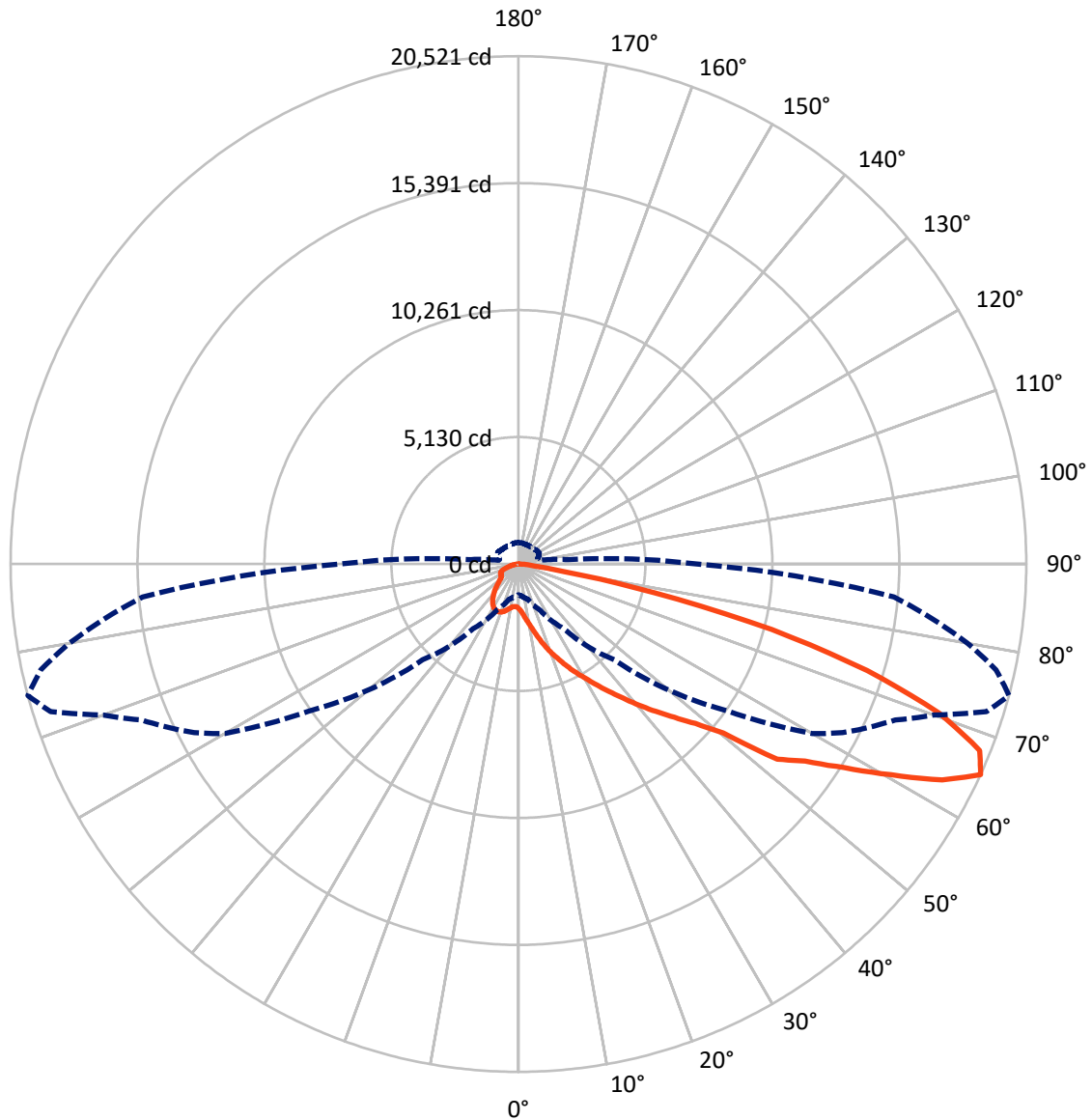
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8.3 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	3119.7	0.0	3119.7
	% Fixture	15.0	0.0	15.0
Street Side	Lumens	17641.3	0.0	17641.3
	% Fixture	85.0	0.0	85.0
Total	Lumens	20761.0	0.0	20761.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	212.4	1.0
10°-20°	811.1	3.9
20°-30°	1636.9	7.9
30°-40°	2779.9	13.4
40°-50°	3877.4	18.7
50°-60°	4752.2	22.9
60°-70°	4471.1	21.5
70°-80°	1960.6	9.4
80°-90°	259.4	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°	20761.0	100.0
0°-180°	20761.0	100.0

Coefficient of Utilization



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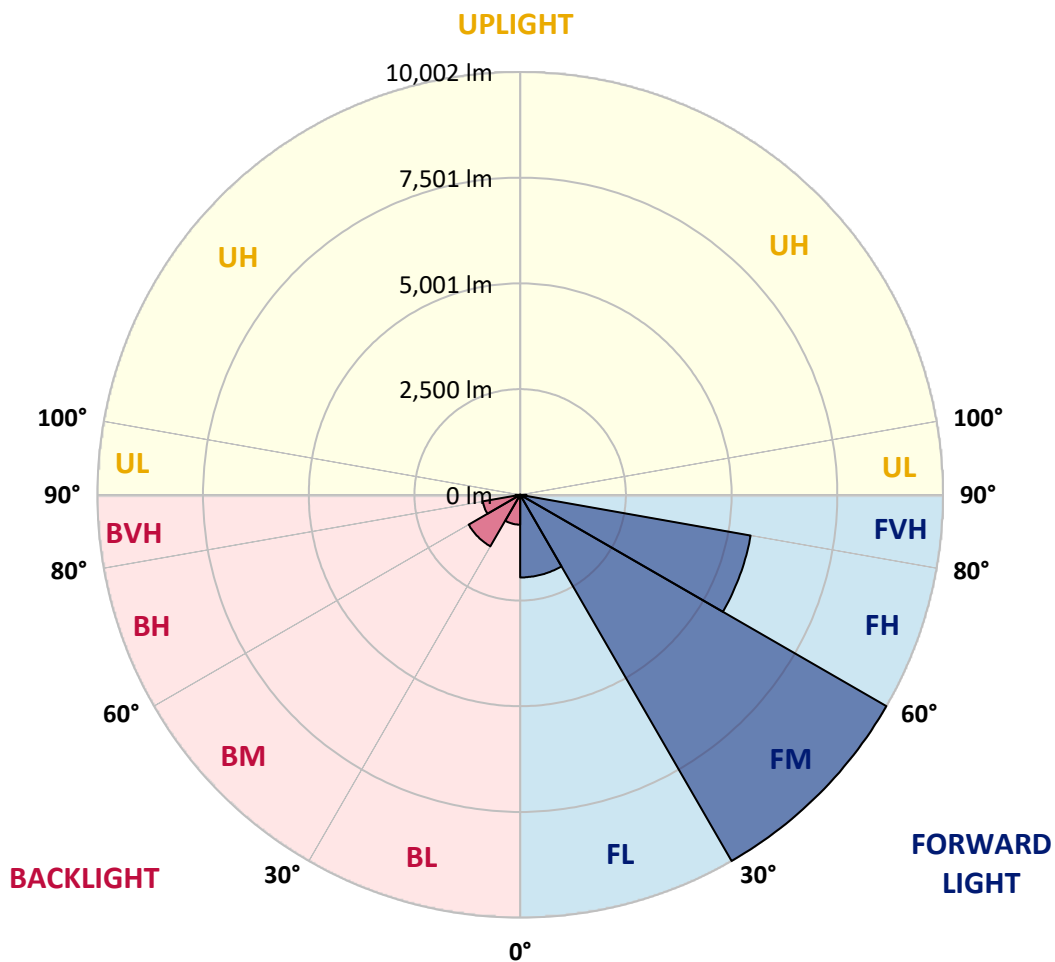
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1954.2	9.4			
FM	(30°-60°)	10001.7	48.2			
FH	(60°-80°)	5535.1	26.7			G3/7500
FVH	(80°-90°)	150.4	0.7			G2/225
BL	(0°-30°)	706.2	3.4	B2/1000		
BM	(30°-60°)	1407.8	6.8	B2/2500		
BH	(60°-80°)	896.6	4.3	B2/1000		G2/1000
BVH	(80°-90°)	109.0	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°	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8
2.5°	2265.0	2238.6	2241.3	2204.3	2150.1	2090.7	2041.8	2015.4	1993.0	1986.4	1949.4
5°	2962.4	2929.3	2917.5	2832.9	2706.1	2555.6	2406.3	2348.2	2300.7	2271.6	2200.3
7.5°	3532.9	3515.7	3499.9	3422.0	3296.5	3103.7	2863.3	2777.5	2698.2	2611.1	2525.2
10°	3921.2	3914.6	3908.0	3853.8	3749.5	3581.8	3322.9	3229.1	3130.1	3019.2	2906.9
12.5°	4214.4	4214.4	4219.7	4174.8	4111.4	3982.0	3746.9	3659.7	3559.3	3443.1	3315.0
15°	4411.2	4416.5	4444.2	4457.4	4424.4	4341.2	4135.2	4058.6	3963.5	3848.6	3721.8
17.5°	4541.9	4552.5	4593.4	4637.0	4679.3	4650.2	4497.0	4425.7	4339.9	4234.2	4115.3
20°	4845.7	4832.5	4833.8	4820.6	4882.7	4905.1	4820.6	4761.2	4692.5	4596.1	4487.8
22.5°	5483.6	5458.5	5393.8	5228.7	5153.4	5145.5	5095.3	5063.6	5010.8	4950.0	4841.7
25°	6315.7	6286.6	6158.5	5886.4	5661.9	5454.6	5362.1	5342.3	5308.0	5267.0	5189.1
27.5°	7175.4	7143.7	6978.7	6635.3	6342.1	5923.4	5635.5	5609.1	5577.4	5560.2	5523.2
30°	7932.2	7897.9	7735.4	7386.8	7032.8	6533.6	6004.0	5911.5	5857.4	5862.7	5841.5
32.5°	8596.5	8566.2	8383.9	8028.6	7669.4	7184.7	6482.1	6338.1	6216.6	6171.7	6187.5
35°	9153.9	9126.1	8926.7	8568.8	8206.9	7804.1	7097.5	6880.9	6682.8	6558.7	6544.1
37.5°	9481.4	9465.6	9325.6	9021.8	8662.6	8366.7	7786.9	7546.6	7254.7	7073.7	6994.5
40°	9462.9	9480.1	9456.3	9319.0	9040.3	8825.0	8505.4	8267.7	7982.4	7713.0	7551.8
42.5°	9193.5	9217.3	9324.2	9395.6	9320.3	9189.5	9132.7	8955.8	8699.5	8414.3	8191.1
45°	8823.7	8844.8	8983.5	9241.0	9456.3	9493.3	9682.2	9593.7	9377.1	9134.1	8888.4
47.5°	8257.1	8298.1	8459.2	8868.6	9381.0	9737.6	10143.1	10184.0	10058.6	9857.8	9628.0
50°	7436.9	7491.1	7716.9	8299.4	9095.8	9988.6	10828.5	10984.4	10934.2	10730.8	10498.4
52.5°	6597.0	6651.1	6952.2	7571.7	8636.2	10091.6	11503.4	11902.3	12190.2	12400.2	12441.1
55°	5722.7	5783.4	6113.6	6826.8	8023.3	9960.8	11985.5	12438.5	12730.4	12949.6	13038.1
57.5°	4736.1	4804.8	5124.4	5845.5	7157.0	9435.2	12521.7	13163.6	13598.1	13936.2	14126.4
60°	3604.2	3690.1	4021.6	4748.0	6018.5	8428.8	12760.7	13710.3	14401.1	14908.2	15209.4
62.5°	2284.8	2372.0	2716.7	3470.8	4722.9	7053.9	12084.5	13470.0	14648.0	15398.2	15950.3
65°	1246.8	1285.1	1476.6	2044.5	3184.2	5473.0	10370.3	12004.0	13701.1	14764.3	15612.2
67.5°	935.1	940.3	960.2	1098.8	1695.8	3695.4	8107.9	9604.2	11488.9	12857.2	13870.1
70°	818.8	818.8	821.5	822.8	920.5	2002.2	5492.9	6870.4	8597.9	9982.0	11240.6
72.5°	734.3	726.4	723.8	707.9	721.1	1026.2	2990.1	4227.6	5684.4	7237.5	8411.6
75°	633.9	632.6	632.6	616.8	624.7	722.4	1296.9	2028.6	3157.8	4604.0	5759.6
77.5°	548.1	538.9	540.2	530.9	556.0	553.4	615.5	836.0	1374.9	2418.2	3377.1
80°	451.7	445.1	449.0	443.8	483.4	409.4	414.7	511.1	682.8	1060.5	1495.0
82.5°	334.1	336.8	361.9	359.2	406.8	276.0	303.8	381.7	459.6	528.3	574.5
85°	195.5	199.4	260.2	273.4	298.5	145.3	186.2	227.2	256.2	284.0	295.8
87.5°	21.1	27.7	145.3	149.2	133.4	43.6	75.3	95.1	101.7	108.3	95.1
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):

	67.5°	70°	72.5°	75°	77.5°	80°	85°	90°	95°	100°	102.5°
0°	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8
2.5°	1937.5	1920.3	1901.8	1891.3	1872.8	1856.9	1827.9	1804.1	1777.7	1759.2	1751.3
5°	2164.7	2123.7	2080.1	2048.4	2008.8	1974.5	1908.4	1829.2	1804.1	1751.3	1738.1
7.5°	2460.5	2386.5	2312.6	2251.8	2183.1	2126.4	2015.4	1872.8	1854.3	1769.8	1751.3
10°	2807.8	2699.5	2589.9	2496.2	2395.8	2308.6	2144.8	1944.1	1924.3	1816.0	1797.5
12.5°	3196.1	3064.1	2922.7	2782.7	2663.9	2541.1	2317.9	2055.0	2023.3	1895.2	1870.1
15°	3596.3	3453.7	3289.9	3120.8	2974.2	2811.8	2530.5	2200.3	2142.2	1991.6	1957.3
17.5°	3991.2	3836.7	3665.0	3476.1	3304.4	3110.3	2760.3	2362.8	2262.4	2086.7	2043.1
20°	4372.9	4215.7	4034.8	3849.9	3635.9	3414.0	2995.4	2522.6	2369.4	2166.0	2109.2
22.5°	4720.2	4585.5	4404.6	4191.9	3975.4	3725.7	3234.4	2682.4	2463.1	2226.7	2154.1
25°	5086.1	4963.2	4783.6	4578.9	4326.7	4049.3	3481.4	2834.3	2538.4	2259.7	2169.9
27.5°	5455.9	5350.2	5181.2	4965.9	4695.1	4387.4	3732.3	2974.2	2599.2	2270.3	2162.0
30°	5850.8	5768.9	5613.0	5372.7	5099.3	4758.5	4005.7	3111.6	2637.5	2255.8	2126.4
32.5°	6224.5	6221.9	6083.2	5833.6	5539.1	5164.0	4293.6	3250.3	2657.3	2214.8	2064.3
35°	6612.8	6667.0	6562.6	6324.9	6014.5	5598.5	4611.9	3398.2	2658.6	2142.2	1983.7
37.5°	7053.9	7150.4	7104.1	6878.3	6552.1	6093.8	4985.7	3564.6	2650.7	2041.8	1866.2
40°	7555.8	7687.9	7686.6	7496.4	7147.7	6648.5	5420.2	3750.8	2632.2	1916.4	1727.5
42.5°	8130.3	8287.5	8331.1	8143.5	7790.9	7254.7	5918.1	3955.5	2603.1	1792.2	1580.9
45°	8788.0	8926.7	9008.6	8834.3	8480.3	7915.0	6490.0	4188.0	2567.5	1632.4	1413.2
47.5°	9492.0	9653.1	9775.9	9626.7	9249.0	8667.9	7167.5	4487.8	2554.3	1450.1	1232.2
50°	10365.0	10531.4	10796.8	10729.5	10522.1	10054.6	8600.5	5195.7	2559.5	1277.1	1080.3
52.5°	12530.9	12912.6	13248.1	13098.9	12606.2	11804.5	9765.4	5589.3	2448.6	1135.8	974.7
55°	13184.7	13617.9	14113.2	14051.1	13578.3	12770.0	10685.9	5918.1	2341.6	1032.8	906.0
57.5°	14328.4	14839.6	15531.6	15518.4	14938.6	14028.6	11870.6	6311.7	2295.4	973.4	871.7
60°	15539.5	16190.6	17146.8	17296.1	16666.1	15719.1	13270.5	6795.1	2302.0	940.3	851.9
62.5°	16424.4	17379.3	18770.0	19216.4	18474.2	17430.8	14723.3	7278.5	2262.4	902.0	828.1
65°	16478.6	17853.4	19826.6	20521.3	19769.8	18429.3	15235.8	7183.4	2024.7	850.5	789.8
67.5°	15157.8	16948.7	19345.8	20107.9	19339.2	17813.8	14337.7	6280.0	1645.6	760.7	723.8
70°	12624.7	14703.5	17191.7	18041.0	17405.7	15861.8	12478.1	5016.1	1229.6	641.9	624.7
72.5°	9756.1	11694.9	13954.7	14740.5	14254.5	12896.8	9842.0	3655.7	878.3	520.4	507.2
75°	6974.7	8625.6	10265.9	10565.7	10086.3	8839.5	6385.7	2283.5	615.5	426.6	408.1
77.5°	4318.7	5392.5	5981.5	5595.9	4984.4	4143.1	2599.2	1127.9	409.4	347.3	328.9
80°	1916.4	2249.2	2099.9	1871.5	1477.9	1215.1	793.7	500.6	264.1	268.1	257.5
82.5°	644.5	681.5	663.0	659.0	594.3	520.4	336.8	216.6	147.9	171.7	167.7
85°	314.3	328.9	330.2	342.1	297.2	231.1	91.1	85.8	63.4	92.5	96.4
87.5°	95.1	96.4	87.2	95.1	76.6	52.8	17.2	23.8	11.9	22.5	22.5
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°	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8
2.5°	1736.7	1731.5	1722.2	1711.6	1709.0	1695.8	1691.8	1685.2	1681.3	1674.7	1669.4
5°	1720.9	1711.6	1701.1	1689.2	1689.2	1670.7	1662.8	1654.9	1654.9	1643.0	1637.7
7.5°	1736.7	1724.9	1713.0	1702.4	1706.4	1685.2	1677.3	1669.4	1668.1	1656.2	1650.9
10°	1781.6	1769.8	1755.2	1744.7	1740.7	1723.5	1714.3	1702.4	1694.5	1686.6	1678.6
12.5°	1850.3	1834.5	1816.0	1793.5	1784.3	1769.8	1755.2	1739.4	1720.9	1713.0	1701.1
15°	1932.2	1905.8	1880.7	1853.0	1827.9	1813.3	1793.5	1768.4	1743.3	1732.8	1716.9
17.5°	1999.6	1971.8	1936.2	1903.2	1858.2	1846.4	1818.6	1788.2	1747.3	1743.3	1719.6
20°	2056.4	2014.1	1970.5	1930.9	1862.2	1855.6	1821.3	1785.6	1727.5	1727.5	1698.4
22.5°	2088.1	2029.9	1978.4	1925.6	1839.8	1834.5	1794.9	1752.6	1681.3	1683.9	1648.3
25°	2093.3	2023.3	1958.6	1895.2	1796.2	1786.9	1736.7	1690.5	1612.6	1607.3	1570.3
27.5°	2072.2	1990.3	1915.0	1838.4	1731.5	1711.6	1656.2	1600.7	1524.1	1510.9	1471.3
30°	2023.3	1926.9	1842.4	1753.9	1641.6	1610.0	1551.8	1495.0	1417.1	1400.0	1363.0
32.5°	1945.4	1835.8	1742.0	1653.5	1529.4	1489.8	1431.7	1374.9	1299.6	1286.4	1252.0
35°	1842.4	1719.6	1620.5	1526.7	1402.6	1361.7	1306.2	1256.0	1187.3	1182.0	1158.3
37.5°	1713.0	1584.9	1479.2	1389.4	1271.8	1250.7	1193.9	1156.9	1100.2	1105.4	1093.6
40°	1566.4	1435.6	1335.2	1256.0	1154.3	1135.8	1101.5	1073.7	1024.9	1039.4	1040.7
42.5°	1418.4	1287.7	1196.6	1125.2	1038.1	1026.2	1002.4	986.6	949.6	978.6	990.5
45°	1250.7	1129.2	1051.3	997.1	932.4	932.4	920.5	919.2	894.1	935.1	947.0
47.5°	1088.3	993.2	939.0	906.0	861.1	882.2	878.3	888.8	870.4	912.6	923.2
50°	965.4	899.4	866.4	850.5	818.8	851.9	859.8	874.3	858.5	895.4	903.4
52.5°	887.5	843.9	825.4	821.5	799.0	840.0	853.2	866.4	847.9	882.2	880.9
55°	843.9	814.9	808.3	816.2	799.0	838.7	851.9	861.1	845.3	869.0	867.7
57.5°	828.1	812.2	816.2	828.1	816.2	849.2	855.8	866.4	850.5	861.1	866.4
60°	826.8	826.8	842.6	858.5	850.5	874.3	878.3	877.0	862.4	863.7	866.4
62.5°	818.8	838.7	865.1	890.2	887.5	916.6	919.2	902.0	890.2	877.0	873.0
65°	793.7	826.8	865.1	899.4	904.7	949.6	954.9	937.7	929.8	907.3	890.2
67.5°	738.3	780.5	825.4	867.7	877.0	937.7	949.6	956.2	960.2	945.6	923.2
70°	644.5	688.1	734.3	783.2	796.4	863.7	888.8	919.2	943.0	964.1	956.2
72.5°	524.3	563.9	603.6	648.5	668.3	738.3	771.3	824.1	861.1	915.3	937.7
75°	416.0	439.8	463.6	491.3	507.2	575.8	616.8	680.2	730.4	805.6	855.8
77.5°	327.5	339.4	351.3	363.2	369.8	408.1	441.1	504.5	562.6	657.7	731.7
80°	252.3	258.9	260.2	264.1	261.5	280.0	291.9	330.2	380.4	474.1	561.3
82.5°	162.4	167.7	170.4	177.0	163.8	187.5	195.5	199.4	225.8	294.5	356.6
85°	91.1	92.5	93.8	96.4	77.9	101.7	103.0	96.4	93.8	121.5	137.4
87.5°	22.5	21.1	22.5	22.5	9.2	21.1	21.1	14.5	10.6	19.8	15.8
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):

	135°	145°	155°	165°	175°	180°
0°	1798.8	1798.8	1798.8	1798.8	1798.8	1798.8
2.5°	1657.5	1654.9	1656.2	1649.6	1646.9	1648.3
5°	1631.1	1625.8	1625.8	1621.8	1616.6	1616.6
7.5°	1643.0	1632.4	1628.4	1620.5	1612.6	1613.9
10°	1661.5	1643.0	1629.8	1617.9	1608.6	1608.6
12.5°	1673.3	1640.3	1620.5	1604.7	1594.1	1594.1
15°	1676.0	1625.8	1596.7	1579.6	1569.0	1569.0
17.5°	1660.1	1596.7	1559.8	1537.3	1525.4	1528.1
20°	1620.5	1542.6	1499.0	1475.2	1463.4	1464.7
22.5°	1558.4	1468.6	1418.4	1390.7	1378.8	1378.8
25°	1473.9	1376.2	1322.0	1299.6	1289.0	1289.0
27.5°	1377.5	1277.1	1229.6	1212.4	1205.8	1205.8
30°	1269.2	1186.0	1151.7	1139.8	1129.2	1129.2
32.5°	1178.1	1118.6	1106.8	1090.9	1063.2	1061.9
35°	1105.4	1098.8	1089.6	1042.0	1002.4	997.1
37.5°	1065.8	1105.4	1047.3	965.4	933.7	932.4
40°	1044.7	1081.7	981.3	941.7	937.7	937.7
42.5°	994.5	1020.9	977.3	954.9	954.9	956.2
45°	941.7	964.1	986.6	966.8	973.4	974.7
47.5°	904.7	949.6	986.6	969.4	982.6	990.5
50°	870.4	936.4	966.8	966.8	981.3	982.6
52.5°	862.4	917.9	948.3	962.8	964.1	957.5
55°	863.7	903.4	933.7	952.2	944.3	944.3
57.5°	862.4	895.4	921.9	928.5	932.4	932.4
60°	863.7	884.9	906.0	903.4	916.6	916.6
62.5°	867.7	870.4	880.9	878.3	898.1	898.1
65°	877.0	851.9	845.3	847.9	871.7	870.4
67.5°	894.1	826.8	805.6	807.0	841.3	836.0
70°	919.2	792.4	760.7	752.8	810.9	801.7
72.5°	927.1	752.8	702.6	694.7	729.0	702.6
75°	890.2	721.1	640.5	614.1	599.6	591.7
77.5°	793.7	701.3	575.8	520.4	497.9	492.6
80°	657.7	660.4	491.3	425.3	493.9	492.6
82.5°	496.6	570.5	393.6	368.5	357.9	298.5
85°	240.4	429.2	302.4	253.6	151.9	144.0
87.5°	21.1	179.6	174.3	113.6	51.5	48.9
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)