

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: P195322

Luminaire Tested: **NAV-AF-04-D-UNV-T2R-7060-800**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P195322
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-7060-800
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 5700K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II
ROADWAY OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20656 lumens
Efficiency: N/A
Efficacy: 120.8 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): 171
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

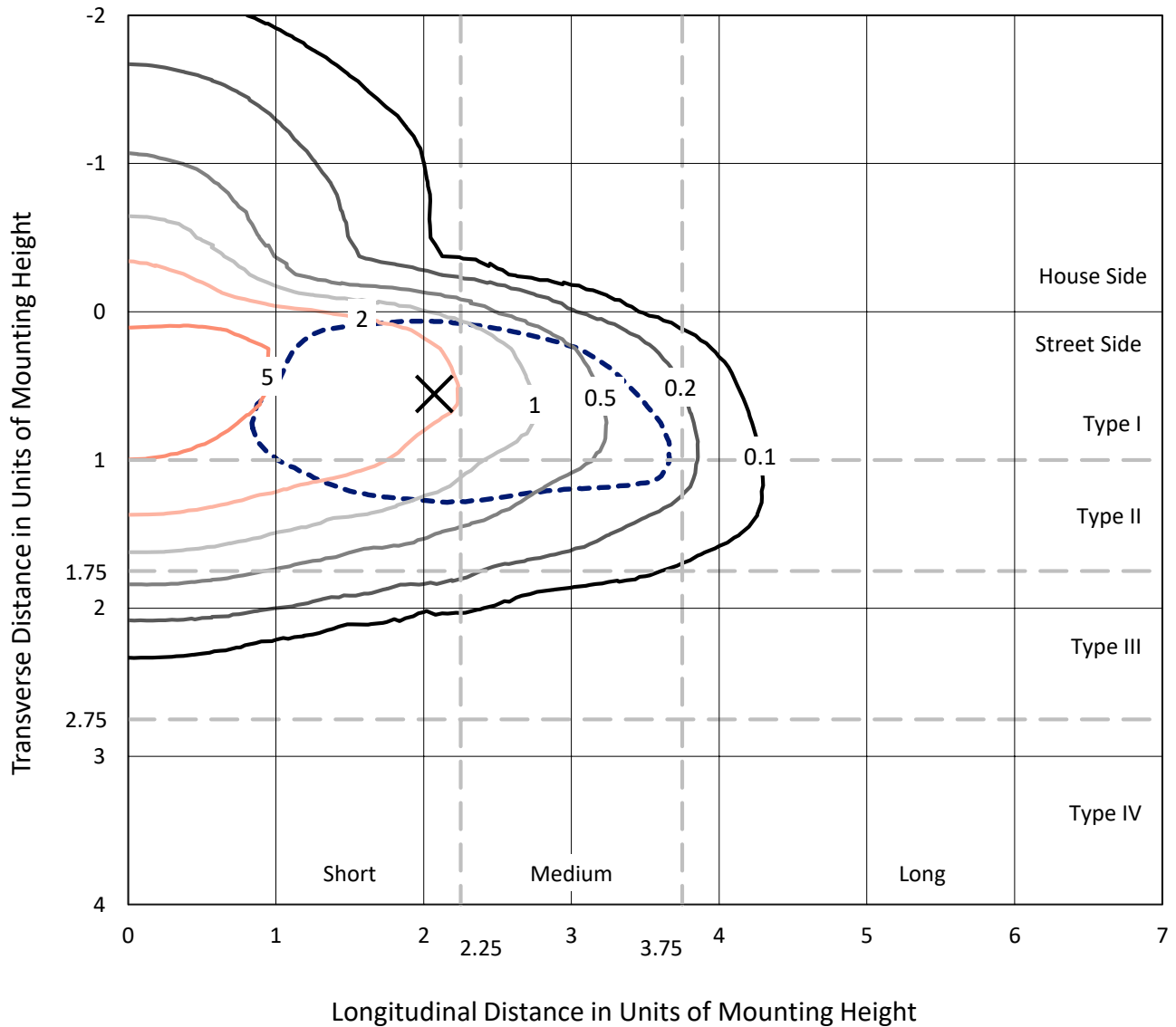


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Iso-Footcandle Lines of Horizontal Illumination

× Max cd
 - - - 1/2 Max cd

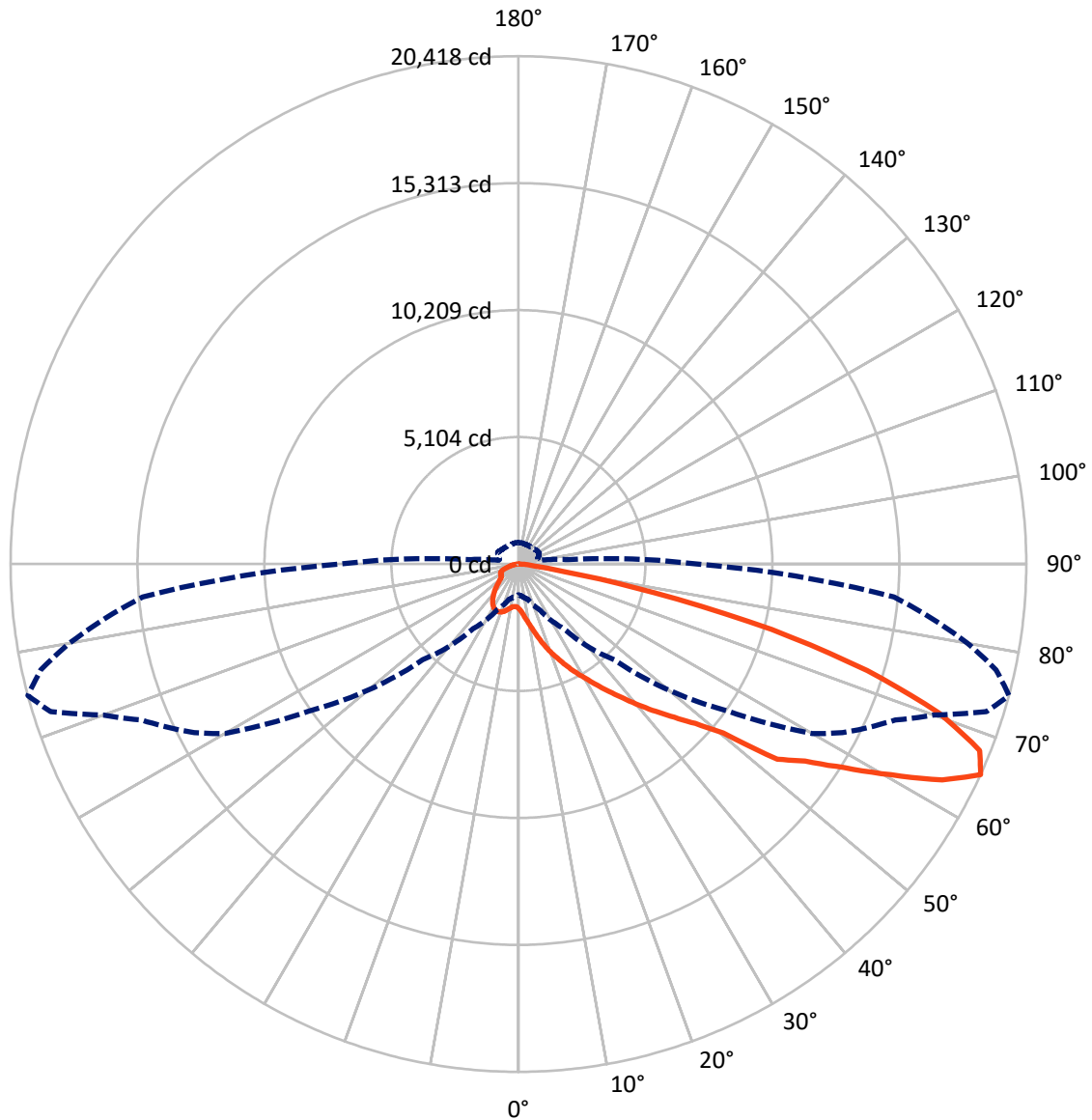


Based on 25 foot mounting height. Maximum calculated value = 8.2 fc
 Type II - Short - Semi-Cutoff

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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	3103.9	0.0	3103.9
	% Fixture	15.0	0.0	15.0
Street Side	Lumens	17552.1	0.0	17552.1
	% Fixture	85.0	0.0	85.0
Total	Lumens	20656.0	0.0	20656.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	211.3	1.0
10°-20°	807.0	3.9
20°-30°	1628.6	7.9
30°-40°	2765.9	13.4
40°-50°	3857.7	18.7
50°-60°	4728.2	22.9
60°-70°	4448.5	21.5
70°-80°	1950.6	9.4
80°-90°	258.1	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°	20656.0	100.0
0°-180°	20656.0	100.0



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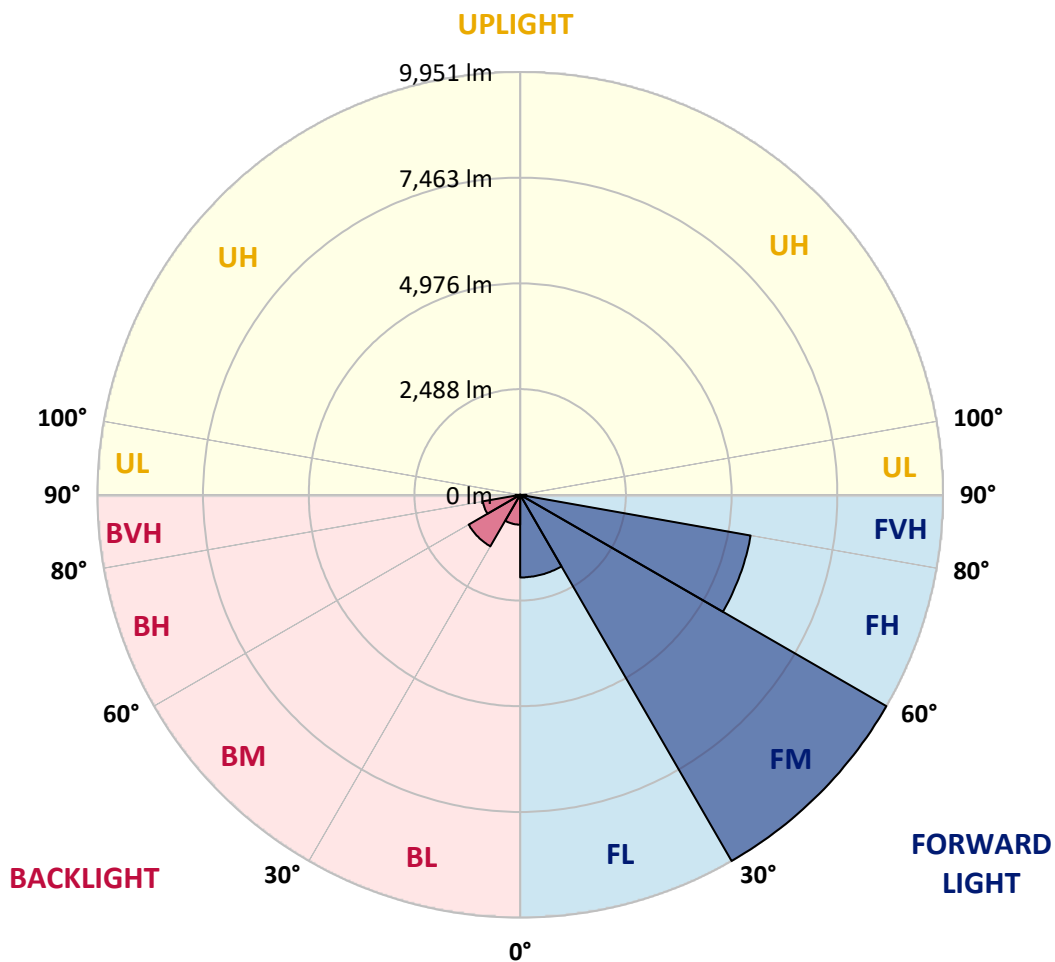
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1944.3	9.4			
FM	(30°-60°)	9951.1	48.2			
FH	(60°-80°)	5507.1	26.7			G3/7500
FVH	(80°-90°)	149.6	0.7			G2/225
BL	(0°-30°)	702.7	3.4	B2/1000		
BM	(30°-60°)	1400.6	6.8	B2/2500		
BH	(60°-80°)	892.1	4.3	B2/1000		G2/1000
BVH	(80°-90°)	108.5	0.5			G2/225
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: 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°	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7
2.5°	2253.6	2227.3	2229.9	2193.1	2139.2	2080.1	2031.5	2005.2	1982.9	1976.3	1939.5
5°	2947.4	2914.5	2902.7	2818.6	2692.5	2542.7	2394.2	2336.4	2289.0	2260.1	2189.2
7.5°	3515.0	3498.0	3482.2	3404.7	3279.8	3088.0	2848.8	2763.4	2684.6	2597.8	2512.4
10°	3901.4	3894.8	3888.2	3834.4	3730.5	3563.7	3306.1	3212.8	3114.3	3003.9	2892.2
12.5°	4193.1	4193.1	4198.3	4153.7	4090.6	3961.8	3727.9	3641.2	3541.3	3425.7	3298.2
15°	4388.9	4394.1	4421.7	4434.9	4402.0	4319.2	4114.2	4038.0	3943.4	3829.1	3703.0
17.5°	4519.0	4529.5	4570.2	4613.6	4655.6	4626.7	4474.3	4403.3	4317.9	4212.8	4094.5
20°	4821.2	4808.1	4809.4	4796.2	4858.0	4880.3	4796.2	4737.1	4668.8	4572.8	4465.1
22.5°	5455.9	5430.9	5366.5	5202.3	5127.4	5119.5	5069.5	5038.0	4985.4	4925.0	4817.3
25°	6283.7	6254.8	6127.3	5856.7	5633.3	5427.0	5335.0	5315.3	5281.1	5240.4	5162.8
27.5°	7139.2	7107.6	6943.4	6601.7	6310.0	5893.4	5607.0	5580.7	5549.2	5532.1	5495.3
30°	7892.1	7857.9	7696.3	7349.4	6997.2	6500.5	5973.6	5881.6	5827.7	5833.0	5812.0
32.5°	8553.1	8522.8	8341.5	7988.0	7630.6	7148.4	6449.3	6306.1	6185.2	6140.5	6156.3
35°	9107.6	9080.0	8881.6	8525.5	8165.4	7764.6	7061.6	6846.1	6649.0	6525.5	6511.0
37.5°	9433.5	9417.7	9278.4	8976.2	8618.8	8324.4	7747.6	7508.4	7218.0	7038.0	6959.1
40°	9415.1	9432.1	9408.5	9271.8	8994.6	8780.4	8462.4	8225.9	7942.0	7674.0	7513.7
42.5°	9147.0	9170.7	9277.1	9348.0	9273.1	9143.1	9086.6	8910.5	8655.6	8371.7	8149.6
45°	8779.1	8800.1	8938.1	9194.3	9408.5	9445.3	9633.2	9545.2	9329.7	9087.9	8843.5
47.5°	8215.3	8256.1	8416.4	8823.7	9333.6	9688.4	10091.8	10132.5	10007.7	9808.0	9579.3
50°	7399.3	7453.2	7677.9	8257.4	9049.8	9938.0	10773.8	10928.8	10878.9	10676.5	10445.3
52.5°	6563.6	6617.5	6917.1	7533.4	8592.5	10040.5	11445.2	11842.1	12128.5	12337.5	12378.2
55°	5693.7	5754.2	6082.7	6792.2	7982.8	9910.5	11924.9	12375.6	12666.0	12884.1	12972.2
57.5°	4712.1	4780.5	5098.5	5815.9	7120.8	9387.5	12458.4	13097.0	13529.3	13865.7	14054.9
60°	3586.0	3671.4	4001.2	4724.0	5988.1	8386.2	12696.2	13641.0	14328.2	14832.8	15132.4
62.5°	2273.3	2360.0	2703.0	3453.3	4699.0	7018.3	12023.4	13401.8	14574.0	15320.3	15869.6
65°	1240.4	1278.6	1469.1	2034.1	3168.1	5445.4	10317.8	11943.3	13631.8	14689.6	15533.2
67.5°	930.3	935.6	955.3	1093.3	1687.2	3676.7	8066.9	9555.7	11430.8	12792.1	13800.0
70°	814.7	814.7	817.3	818.6	915.9	1992.1	5465.1	6835.6	8554.4	9931.5	11183.8
72.5°	730.6	722.7	720.1	704.3	717.5	1021.0	2975.0	4206.2	5655.6	7200.9	8369.1
75°	630.7	629.4	629.4	613.7	621.5	718.8	1290.4	2018.4	3141.9	4580.7	5730.5
77.5°	545.3	536.1	537.4	528.2	553.2	550.6	612.3	831.8	1367.9	2406.0	3360.0
80°	449.4	442.8	446.8	441.5	480.9	407.4	412.6	508.5	679.4	1055.2	1487.5
82.5°	332.5	335.1	360.0	357.4	404.7	274.6	302.2	379.8	457.3	525.6	571.6
85°	194.5	198.4	258.9	272.0	297.0	144.5	185.3	226.0	254.9	282.5	294.3
87.5°	21.0	27.6	144.5	148.5	132.7	43.4	74.9	94.6	101.2	107.8	94.6
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°	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7
2.5°	1927.7	1910.6	1892.2	1881.7	1863.3	1847.5	1818.6	1795.0	1768.7	1750.3	1742.4
5°	2153.7	2113.0	2069.6	2038.1	1998.6	1964.5	1898.8	1819.9	1795.0	1742.4	1729.3
7.5°	2448.0	2374.5	2300.9	2240.4	2172.1	2115.6	2005.2	1863.3	1844.9	1760.8	1742.4
10°	2793.6	2685.9	2576.8	2483.5	2383.7	2296.9	2134.0	1934.3	1914.5	1806.8	1788.4
12.5°	3180.0	3048.6	2908.0	2768.7	2650.4	2528.2	2306.1	2044.6	2013.1	1885.6	1860.7
15°	3578.1	3436.2	3273.3	3105.1	2959.2	2797.6	2517.7	2189.2	2131.4	1981.6	1947.4
17.5°	3971.0	3817.3	3646.4	3458.5	3287.7	3094.6	2746.3	2350.8	2250.9	2076.2	2032.8
20°	4350.8	4194.4	4014.4	3830.4	3617.5	3396.8	2980.2	2509.8	2357.4	2155.0	2098.5
22.5°	4696.4	4562.3	4382.3	4170.7	3955.2	3706.9	3218.1	2668.8	2450.7	2215.5	2143.2
25°	5060.3	4938.1	4759.4	4555.8	4304.8	4028.8	3463.8	2819.9	2525.6	2248.3	2159.0
27.5°	5428.3	5323.2	5155.0	4940.8	4671.4	4365.2	3713.5	2959.2	2586.0	2258.8	2151.1
30°	5821.2	5739.7	5584.6	5345.5	5073.5	4734.5	3985.5	3095.9	2624.1	2244.4	2115.6
32.5°	6193.0	6190.4	6052.4	5804.1	5511.1	5137.9	4271.9	3233.8	2643.8	2203.6	2053.8
35°	6579.4	6633.3	6529.4	6292.9	5984.1	5570.2	4588.6	3381.0	2645.2	2131.4	1973.7
37.5°	7018.3	7114.2	7068.2	6843.5	6518.9	6063.0	4960.5	3546.6	2637.3	2031.5	1856.7
40°	7517.6	7649.0	7647.7	7458.5	7111.6	6614.9	5392.8	3731.9	2618.9	1906.7	1718.8
42.5°	8089.2	8245.6	8288.9	8102.3	7751.5	7218.0	5888.2	3935.5	2590.0	1783.1	1572.9
45°	8743.6	8881.6	8963.0	8789.6	8437.4	7875.0	6457.2	4166.8	2554.5	1624.1	1406.0
47.5°	9444.0	9604.3	9726.5	9578.0	9202.2	8624.0	7131.3	4465.1	2541.3	1442.8	1226.0
50°	10312.5	10478.1	10742.2	10675.2	10468.9	10003.8	8557.0	5169.4	2546.6	1270.7	1074.9
52.5°	12467.6	12847.3	13181.1	13032.6	12542.5	11744.8	9716.0	5561.0	2436.2	1130.1	969.8
55°	13118.0	13549.0	14041.8	13980.0	13509.6	12705.4	10631.9	5888.2	2329.8	1027.6	901.4
57.5°	14256.0	14764.5	15453.1	15439.9	14863.1	13957.7	11810.5	6279.8	2283.8	968.4	867.3
60°	15460.9	16108.8	17060.1	17208.6	16581.8	15639.6	13203.4	6760.7	2290.4	935.6	847.6
62.5°	16341.3	17291.4	18675.1	19119.2	18380.7	17342.6	14648.9	7241.6	2250.9	897.5	823.9
65°	16395.2	17763.1	19726.3	20417.5	19669.8	18336.0	15158.7	7147.0	2014.4	846.2	785.8
67.5°	15081.2	16863.0	19248.0	20006.2	19241.4	17723.7	14265.2	6248.2	1637.3	756.9	720.1
70°	12560.9	14629.2	17104.8	17949.7	17317.7	15781.6	12415.0	4990.7	1223.4	638.6	621.5
72.5°	9706.8	11635.8	13884.1	14665.9	14182.4	12831.6	9792.2	3637.2	873.8	517.7	504.6
75°	6939.4	8582.0	10214.0	10512.3	10035.3	8794.8	6353.4	2272.0	612.3	424.4	406.0
77.5°	4296.9	5365.2	5951.3	5567.6	4959.2	4122.1	2586.0	1122.2	407.4	345.6	327.2
80°	1906.7	2237.8	2089.3	1862.0	1470.4	1208.9	789.7	498.0	262.8	266.7	256.2
82.5°	641.2	678.0	659.6	655.7	591.3	517.7	335.1	215.5	147.2	170.8	166.9
85°	312.7	327.2	328.5	340.3	295.7	230.0	90.7	85.4	63.1	92.0	95.9
87.5°	94.6	95.9	86.7	94.6	76.2	52.6	17.1	23.7	11.8	22.3	22.3
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):

	105°	107.5°	110°	112.5°	115°	117.5°	120°	122.5°	125°	127.5°	130°
0°	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7
2.5°	1728.0	1722.7	1713.5	1703.0	1700.4	1687.2	1683.3	1676.7	1672.8	1666.2	1660.9
5°	1712.2	1703.0	1692.5	1680.7	1680.7	1662.3	1654.4	1646.5	1646.5	1634.7	1629.4
7.5°	1728.0	1716.1	1704.3	1693.8	1697.7	1676.7	1668.8	1660.9	1659.6	1647.8	1642.5
10°	1772.6	1760.8	1746.4	1735.8	1731.9	1714.8	1705.6	1693.8	1685.9	1678.0	1670.1
12.5°	1841.0	1825.2	1806.8	1784.5	1775.3	1760.8	1746.4	1730.6	1712.2	1704.3	1692.5
15°	1922.4	1896.2	1871.2	1843.6	1818.6	1804.2	1784.5	1759.5	1734.5	1724.0	1708.2
17.5°	1989.4	1961.9	1926.4	1893.5	1848.8	1837.0	1809.4	1779.2	1738.5	1734.5	1710.9
20°	2046.0	2003.9	1960.5	1921.1	1852.8	1846.2	1812.1	1776.6	1718.8	1718.8	1689.8
22.5°	2077.5	2019.7	1968.4	1915.9	1830.5	1825.2	1785.8	1743.7	1672.8	1675.4	1639.9
25°	2082.7	2013.1	1948.7	1885.6	1787.1	1777.9	1728.0	1682.0	1604.4	1599.2	1562.4
27.5°	2061.7	1980.3	1905.4	1829.1	1722.7	1703.0	1647.8	1592.6	1516.4	1503.3	1463.8
30°	2013.1	1917.2	1833.1	1745.0	1633.3	1601.8	1544.0	1487.5	1410.0	1392.9	1356.1
32.5°	1935.6	1826.5	1733.2	1645.2	1521.7	1482.2	1424.4	1367.9	1293.0	1279.9	1245.7
35°	1833.1	1710.9	1612.3	1519.0	1395.5	1354.8	1299.6	1249.6	1181.3	1176.1	1152.4
37.5°	1704.3	1576.8	1471.7	1382.4	1265.4	1244.4	1187.9	1151.1	1094.6	1099.8	1088.0
40°	1558.4	1428.4	1328.5	1249.6	1148.5	1130.1	1095.9	1068.3	1019.7	1034.1	1035.5
42.5°	1411.3	1281.2	1190.5	1119.6	1032.8	1021.0	997.4	981.6	944.8	973.7	985.5
45°	1244.4	1123.5	1046.0	992.1	927.7	927.7	915.9	914.6	889.6	930.3	942.2
47.5°	1082.8	988.2	934.3	901.4	856.8	877.8	873.8	884.3	865.9	908.0	918.5
50°	960.6	894.9	862.0	846.2	814.7	847.6	855.4	869.9	854.1	890.9	898.8
52.5°	883.0	839.7	821.3	817.3	795.0	835.7	848.9	862.0	843.6	877.8	876.5
55°	839.7	810.8	804.2	812.1	795.0	834.4	847.6	856.8	841.0	864.6	863.3
57.5°	823.9	808.1	812.1	823.9	812.1	844.9	851.5	862.0	846.2	856.8	862.0
60°	822.6	822.6	838.4	854.1	846.2	869.9	873.8	872.5	858.1	859.4	862.0
62.5°	814.7	834.4	860.7	885.7	883.0	911.9	914.6	897.5	885.7	872.5	868.6
65°	789.7	822.6	860.7	894.9	900.1	944.8	950.0	933.0	925.1	902.7	885.7
67.5°	734.5	776.6	821.3	863.3	872.5	933.0	944.8	951.4	955.3	940.8	918.5
70°	641.2	684.6	730.6	779.2	792.4	859.4	884.3	914.6	938.2	959.2	951.4
72.5°	521.7	561.1	600.5	645.2	664.9	734.5	767.4	820.0	856.8	910.6	933.0
75°	413.9	437.6	461.2	488.8	504.6	572.9	613.7	676.7	726.7	801.6	851.5
77.5°	325.9	337.7	349.5	361.4	367.9	406.0	438.9	502.0	559.8	654.4	728.0
80°	251.0	257.6	258.9	262.8	260.2	278.6	290.4	328.5	378.4	471.7	558.5
82.5°	161.6	166.9	169.5	176.1	162.9	186.6	194.5	198.4	224.7	293.0	354.8
85°	90.7	92.0	93.3	95.9	77.5	101.2	102.5	95.9	93.3	120.9	136.7
87.5°	22.3	21.0	22.3	22.3	9.2	21.0	21.0	14.5	10.5	19.7	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°	1789.7	1789.7	1789.7	1789.7	1789.7	1789.7
2.5°	1649.1	1646.5	1647.8	1641.2	1638.6	1639.9
5°	1622.8	1617.6	1617.6	1613.6	1608.4	1608.4
7.5°	1634.7	1624.1	1620.2	1612.3	1604.4	1605.8
10°	1653.1	1634.7	1621.5	1609.7	1600.5	1600.5
12.5°	1664.9	1632.0	1612.3	1596.6	1586.0	1586.0
15°	1667.5	1617.6	1588.7	1571.6	1561.1	1561.1
17.5°	1651.7	1588.7	1551.9	1529.5	1517.7	1520.3
20°	1612.3	1534.8	1491.4	1467.8	1456.0	1457.3
22.5°	1550.6	1461.2	1411.3	1383.7	1371.9	1371.9
25°	1466.5	1369.2	1315.3	1293.0	1282.5	1282.5
27.5°	1370.5	1270.7	1223.4	1206.3	1199.7	1199.7
30°	1262.8	1180.0	1145.8	1134.0	1123.5	1123.5
32.5°	1172.1	1113.0	1101.2	1085.4	1057.8	1056.5
35°	1099.8	1093.3	1084.1	1036.8	997.4	992.1
37.5°	1060.4	1099.8	1042.0	960.6	929.0	927.7
40°	1039.4	1076.2	976.3	936.9	933.0	933.0
42.5°	989.5	1015.7	972.4	950.0	950.0	951.4
45°	936.9	959.2	981.6	961.9	968.4	969.8
47.5°	900.1	944.8	981.6	964.5	977.6	985.5
50°	865.9	931.7	961.9	961.9	976.3	977.6
52.5°	858.1	913.3	943.5	957.9	959.2	952.7
55°	859.4	898.8	929.0	947.4	939.5	939.5
57.5°	858.1	890.9	917.2	923.8	927.7	927.7
60°	859.4	880.4	901.4	898.8	911.9	911.9
62.5°	863.3	865.9	876.5	873.8	893.5	893.5
65°	872.5	847.6	841.0	843.6	867.3	865.9
67.5°	889.6	822.6	801.6	802.9	837.0	831.8
70°	914.6	788.4	756.9	749.0	806.8	797.6
72.5°	922.5	749.0	699.1	691.2	725.3	699.1
75°	885.7	717.5	637.3	611.0	596.6	588.7
77.5°	789.7	697.8	572.9	517.7	495.4	490.1
80°	654.4	657.0	488.8	423.1	491.4	490.1
82.5°	494.1	567.7	391.6	366.6	356.1	297.0
85°	239.2	427.1	300.9	252.3	151.1	143.2
87.5°	21.0	178.7	173.5	113.0	51.2	48.6
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)