

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: P196274

Luminaire Tested: **NAV-AF-02-D-UNV-T2R-600**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196274
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-02-D-UNV-T2R-600
Description: NAVION ROADWAY AND AREA LUMINAIRE
(2) 70 CRI, 4000K, 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: 8603 lumens
Efficiency: N/A
Efficacy: 130.3 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type II - Short - Semi-Cutoff
BUG Rating: B1 - U0 - G2

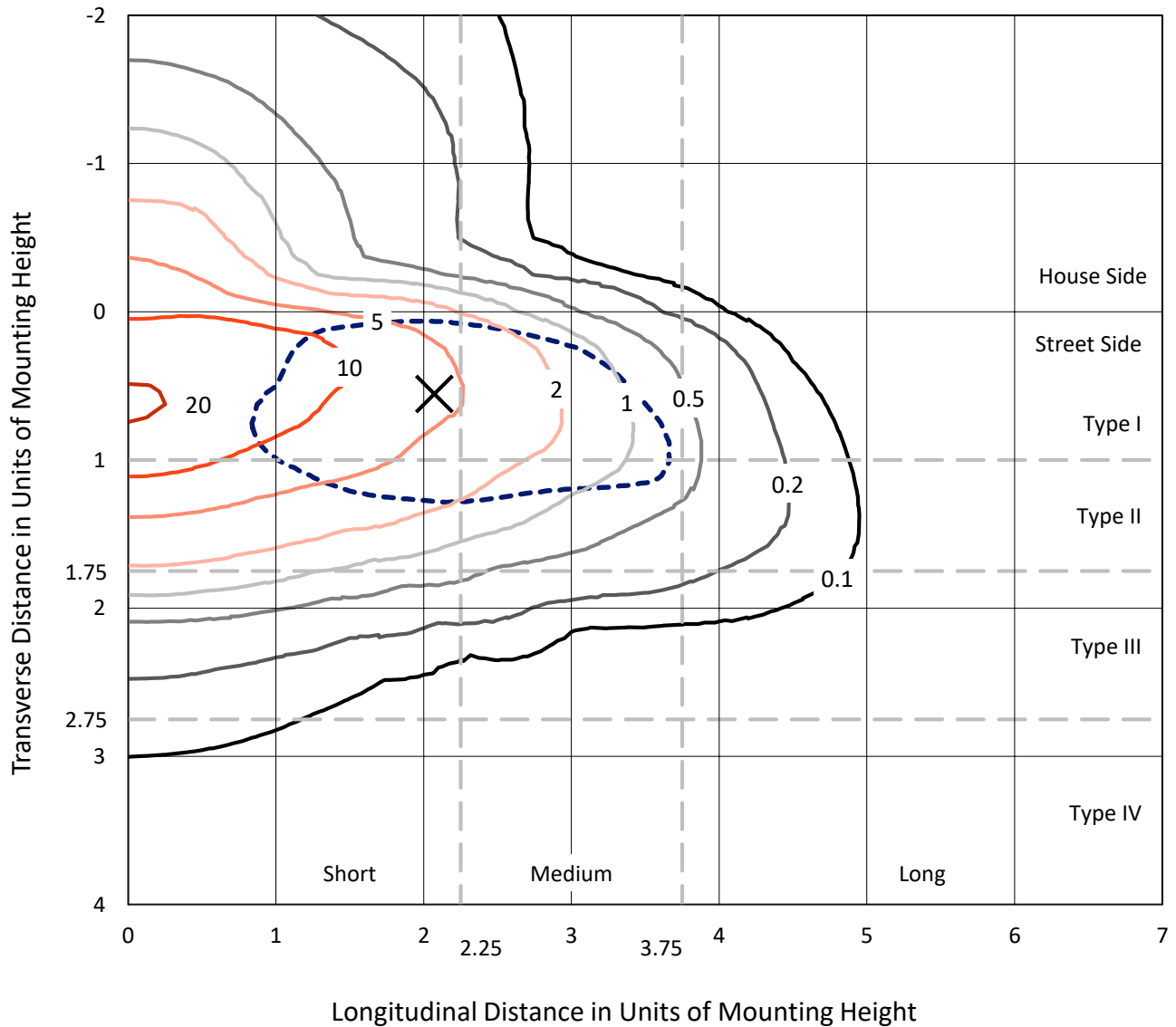
Input Watts (W): 66
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

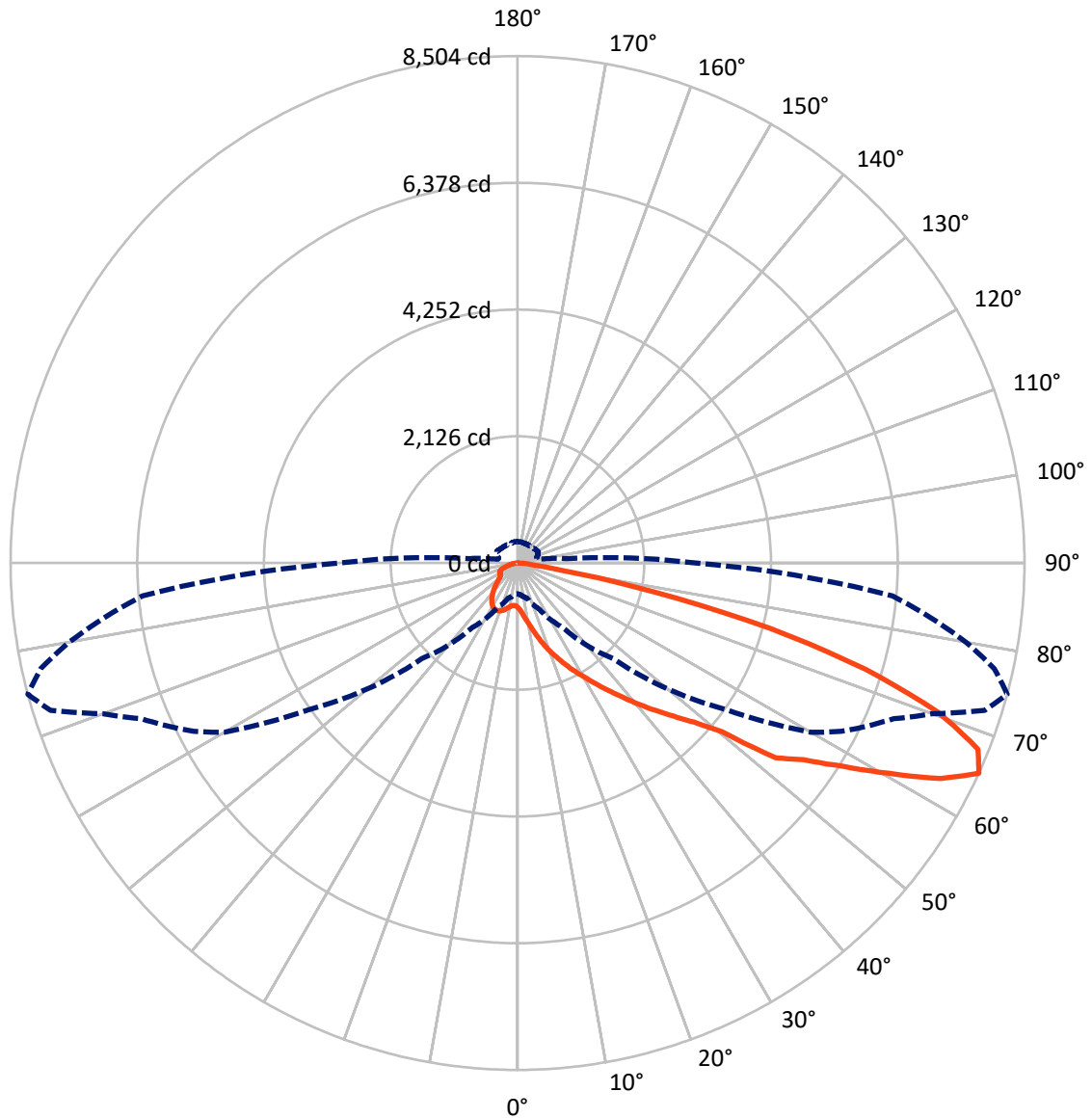
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 21.4 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	1292.7	0.0	1292.7
	% Fixture	15.0	0.0	15.0
Street Side	Lumens	7310.3	0.0	7310.3
	% Fixture	85.0	0.0	85.0
Total	Lumens	8603.0	0.0	8603.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	88.0	1.0
10°-20°	336.1	3.9
20°-30°	678.3	7.9
30°-40°	1152.0	13.4
40°-50°	1606.7	18.7
50°-60°	1969.2	22.9
60°-70°	1852.8	21.5
70°-80°	812.4	9.4
80°-90°	107.5	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°	8603.0	100.0
0°-180°	8603.0	100.0



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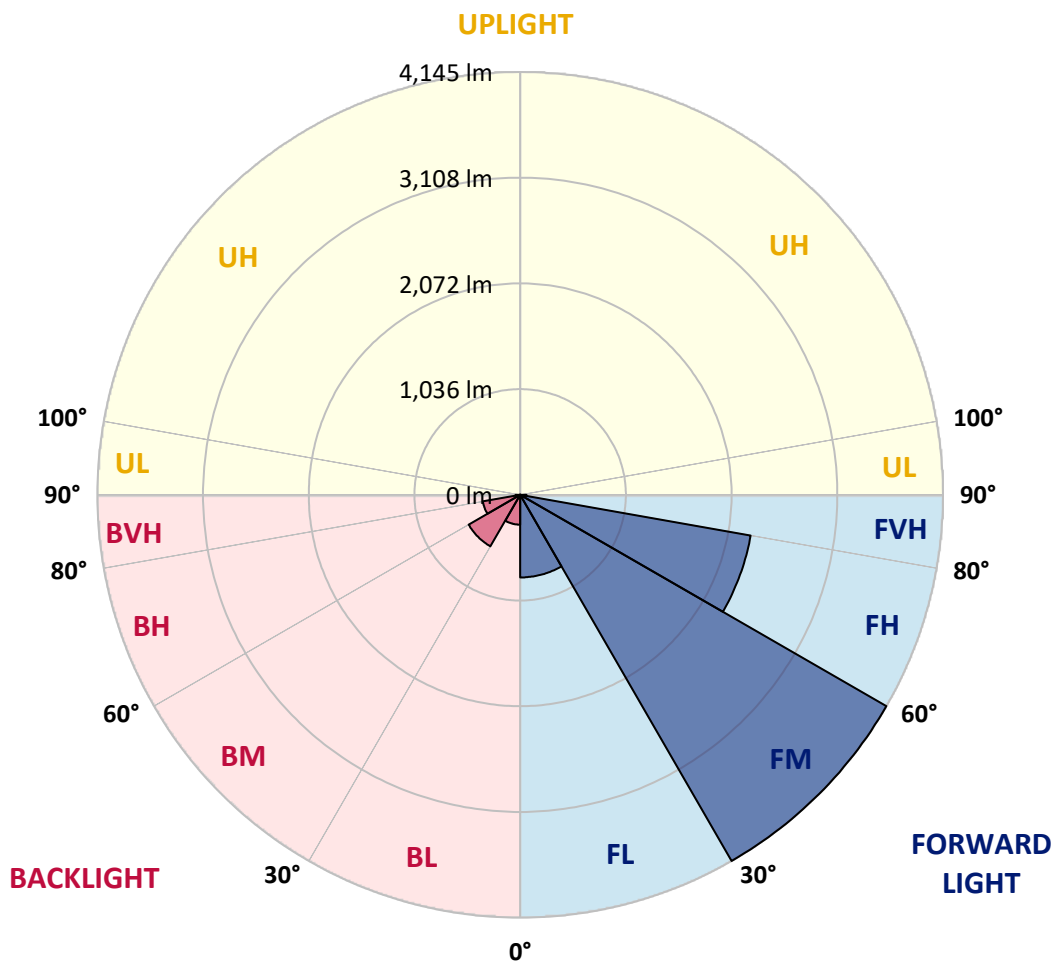
CATALOG NUMBER: NAV-AF-02-D-UNV-T2R-600

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	809.8	9.4			
FM (30°-60°)	4144.5	48.2			
FH (60°-80°)	2293.6	26.7			G2/5000
FVH (80°-90°)	62.3	0.7			G1/100
BL (0°-30°)	292.6	3.4	B1/500		
BM (30°-60°)	583.4	6.8	B1/1000		
BH (60°-80°)	371.6	4.3	B1/500		G1/500
BVH (80°-90°)	45.2	0.5			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B1-U0-G2

Type II Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	57.5°	60°	62.5°	65°
0°	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4
2.5°	938.6	927.6	928.7	913.4	891.0	866.3	846.1	835.1	825.8	823.1	807.8
5°	1227.5	1213.8	1208.9	1173.9	1121.4	1059.0	997.2	973.0	953.4	941.3	911.8
7.5°	1463.9	1456.9	1450.3	1418.0	1366.0	1286.2	1186.5	1150.9	1118.1	1082.0	1046.4
10°	1624.9	1622.2	1619.4	1596.9	1553.8	1484.2	1377.0	1338.1	1297.1	1251.1	1204.5
12.5°	1746.4	1746.4	1748.5	1729.9	1703.7	1650.0	1552.6	1516.5	1474.9	1426.8	1373.7
15°	1827.9	1830.2	1841.6	1847.0	1833.4	1799.0	1713.5	1681.8	1642.3	1594.8	1542.2
17.5°	1882.1	1886.5	1903.4	1921.5	1939.0	1926.9	1863.5	1833.9	1798.3	1754.6	1705.4
20°	2008.0	2002.5	2003.0	1997.6	2023.3	2032.6	1997.6	1973.0	1944.5	1904.5	1859.6
22.5°	2272.3	2261.9	2235.1	2166.7	2135.5	2132.2	2111.4	2098.3	2076.4	2051.2	2006.3
25°	2617.1	2605.0	2552.0	2439.2	2346.2	2260.3	2222.0	2213.8	2199.5	2182.6	2150.2
27.5°	2973.4	2960.2	2891.9	2749.6	2628.1	2454.6	2335.3	2324.3	2311.2	2304.1	2288.8
30°	3286.9	3272.7	3205.4	3061.0	2914.3	2707.4	2487.9	2449.7	2427.2	2429.4	2420.6
32.5°	3562.2	3549.6	3474.1	3326.9	3178.1	2977.2	2686.1	2626.4	2576.1	2557.5	2564.0
35°	3793.2	3781.7	3699.1	3550.8	3400.8	3233.9	2941.1	2851.4	2769.2	2717.8	2711.7
37.5°	3928.9	3922.4	3864.4	3738.5	3589.6	3467.0	3226.8	3127.2	3006.2	2931.3	2898.4
40°	3921.3	3928.4	3918.5	3861.6	3746.1	3656.9	3524.5	3426.0	3307.8	3196.1	3129.4
42.5°	3809.7	3819.5	3863.8	3893.4	3862.2	3808.0	3784.5	3711.2	3605.0	3486.7	3394.3
45°	3656.4	3665.1	3722.6	3829.3	3918.5	3933.9	4012.1	3975.5	3885.7	3785.0	3683.2
47.5°	3421.6	3438.5	3505.3	3675.0	3887.3	4035.1	4203.1	4220.1	4168.1	4084.9	3989.7
50°	3081.7	3104.1	3197.7	3439.2	3769.2	4139.1	4487.2	4551.7	4531.0	4446.7	4350.3
52.5°	2733.6	2756.1	2880.9	3137.6	3578.7	4181.8	4766.8	4932.2	5051.4	5138.4	5155.4
55°	2371.4	2396.6	2533.3	2828.9	3324.7	4127.6	4966.6	5154.3	5275.3	5366.1	5402.8
57.5°	1962.5	1991.0	2123.4	2422.2	2965.7	3909.8	5188.8	5454.8	5634.8	5775.0	5853.7
60°	1493.5	1529.1	1666.5	1967.4	2494.0	3492.8	5287.8	5681.4	5967.6	6177.7	6302.5
62.5°	946.8	983.0	1125.8	1438.3	1957.1	2923.1	5007.7	5581.7	6069.9	6380.8	6609.5
65°	516.6	532.5	611.8	847.2	1319.5	2268.0	4297.2	4974.2	5677.5	6118.1	6469.4
67.5°	387.5	389.6	397.8	455.3	702.7	1531.3	3359.8	3979.8	4760.8	5327.8	5747.6
70°	339.3	339.3	340.4	340.9	381.5	829.7	2276.2	2847.0	3562.8	4136.4	4657.9
72.5°	304.3	301.1	299.9	293.4	298.8	425.2	1239.0	1751.8	2355.5	2999.1	3485.6
75°	262.7	262.2	262.2	255.5	258.9	299.3	537.5	840.7	1308.6	1907.8	2386.7
77.5°	227.1	223.3	223.8	220.0	230.4	229.3	255.0	346.5	569.7	1002.1	1399.4
80°	187.2	184.4	186.1	183.9	200.3	169.7	171.9	211.8	282.9	439.5	619.5
82.5°	138.5	139.5	150.0	148.8	168.6	114.4	125.9	158.1	190.5	218.9	238.0
85°	81.0	82.7	107.8	113.2	123.7	60.3	77.1	94.1	106.2	117.6	122.5
87.5°	8.8	11.5	60.3	61.9	55.2	18.1	31.2	39.4	42.1	44.9	39.4
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°	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4
2.5°	802.9	795.8	788.1	783.7	776.0	769.5	757.4	747.6	736.6	729.0	725.7
5°	897.0	880.0	861.9	848.8	832.4	818.2	790.8	758.0	747.6	725.7	720.3
7.5°	1019.6	989.0	958.3	933.1	904.7	881.2	835.1	776.0	768.3	733.4	725.7
10°	1163.5	1118.6	1073.2	1034.4	992.8	956.7	888.7	805.6	797.4	752.5	744.8
12.5°	1324.4	1269.7	1211.2	1153.2	1103.9	1052.9	960.4	851.6	838.4	785.3	775.0
15°	1490.2	1431.1	1363.3	1293.2	1232.5	1165.1	1048.6	911.8	887.7	825.3	811.1
17.5°	1653.9	1589.9	1518.7	1440.4	1369.3	1288.8	1143.9	979.1	937.5	864.7	846.7
20°	1812.1	1746.9	1671.9	1595.3	1506.7	1414.7	1241.2	1045.4	981.8	897.5	874.0
22.5°	1956.0	1900.1	1825.1	1737.1	1647.4	1543.8	1340.3	1111.5	1020.7	922.7	892.6
25°	2107.6	2056.6	1982.3	1897.5	1792.9	1677.9	1442.7	1174.4	1051.9	936.4	899.2
27.5°	2260.8	2217.0	2147.0	2057.8	1945.6	1818.1	1546.6	1232.5	1077.1	940.8	895.9
30°	2424.5	2390.5	2326.0	2226.4	2113.0	1971.8	1659.9	1289.4	1092.9	934.8	881.2
32.5°	2579.4	2578.2	2520.8	2417.3	2295.3	2139.9	1779.2	1346.8	1101.1	917.8	855.4
35°	2740.3	2762.7	2719.4	2620.9	2492.3	2320.0	1911.1	1408.2	1101.7	887.7	822.0
37.5°	2923.1	2963.0	2943.8	2850.2	2715.1	2525.2	2066.0	1477.1	1098.4	846.1	773.4
40°	3131.0	3185.8	3185.2	3106.4	2961.9	2755.0	2246.1	1554.3	1090.8	794.1	715.9
42.5°	3369.1	3434.1	3452.3	3374.5	3228.4	3006.2	2452.4	1639.1	1078.7	742.7	655.1
45°	3641.6	3699.1	3733.1	3660.7	3514.1	3279.9	2689.3	1735.4	1063.9	676.5	585.6
47.5°	3933.3	4000.0	4051.0	3989.1	3832.6	3591.8	2970.1	1859.6	1058.4	600.9	510.7
50°	4295.1	4364.0	4474.1	4446.2	4360.2	4166.5	3563.9	2153.0	1060.6	529.2	447.6
52.5°	5192.6	5350.7	5489.8	5428.0	5223.8	4891.6	4046.6	2316.1	1014.7	470.7	403.9
55°	5463.5	5643.0	5848.2	5822.5	5626.6	5291.7	4428.0	2452.4	970.4	428.0	375.4
57.5°	5937.5	6149.3	6436.0	6430.6	6190.3	5813.2	4919.0	2615.5	951.1	403.3	361.2
60°	6439.4	6709.1	7105.4	7167.2	6906.1	6513.7	5499.1	2815.8	953.9	389.6	353.0
62.5°	6806.0	7201.7	7778.0	7963.0	7655.4	7223.1	6101.1	3016.1	937.5	373.8	343.1
65°	6828.4	7398.2	8215.8	8503.7	8192.3	7636.7	6313.4	2976.7	839.0	352.4	327.2
67.5°	6281.1	7023.3	8016.6	8332.3	8013.9	7381.7	5941.3	2602.3	681.9	315.3	299.9
70°	5231.5	6092.9	7123.9	7475.9	7212.6	6572.9	5170.7	2078.5	509.5	266.0	258.9
72.5°	4042.8	4846.2	5782.5	6108.2	5906.8	5344.2	4078.3	1514.9	364.0	215.6	210.1
75°	2890.2	3574.3	4254.0	4378.2	4179.6	3663.0	2646.1	946.2	255.0	176.8	169.1
77.5°	1789.7	2234.5	2478.6	2318.8	2065.4	1716.8	1077.1	467.4	169.7	143.9	136.3
80°	794.1	932.0	870.2	775.5	612.4	503.5	328.9	207.5	109.5	111.1	106.7
82.5°	267.1	282.4	274.8	273.1	246.3	215.6	139.5	89.7	61.3	71.2	69.5
85°	130.2	136.3	136.9	141.8	123.2	95.7	37.7	35.6	26.3	38.4	40.0
87.5°	39.4	40.0	36.1	39.4	31.7	21.9	7.2	9.8	4.9	9.3	9.3
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°	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4
2.5°	719.6	717.5	713.6	709.3	708.2	702.7	701.0	698.4	696.7	694.0	691.7
5°	713.1	709.3	704.9	700.0	700.0	692.3	689.1	685.8	685.8	680.8	678.6
7.5°	719.6	714.7	709.8	705.4	707.1	698.4	695.1	691.7	691.2	686.3	684.1
10°	738.3	733.4	727.3	722.9	721.3	714.2	710.3	705.4	702.2	698.9	695.6
12.5°	766.7	760.2	752.5	743.2	739.4	733.4	727.3	720.8	713.1	709.8	704.9
15°	800.7	789.7	779.3	767.8	757.4	751.5	743.2	732.8	722.4	718.0	711.5
17.5°	828.6	817.1	802.3	788.6	770.1	765.1	753.6	741.0	724.0	722.4	712.6
20°	852.1	834.6	816.5	800.2	771.7	769.0	754.7	739.9	715.9	715.9	703.8
22.5°	865.2	841.2	819.8	797.9	762.4	760.2	743.8	726.2	696.7	697.8	683.0
25°	867.5	838.4	811.6	785.3	744.3	740.5	719.6	700.5	668.2	666.0	650.7
27.5°	858.7	824.8	793.6	761.8	717.5	709.3	686.3	663.3	631.6	626.0	609.7
30°	838.4	798.5	763.4	726.8	680.3	667.2	643.0	619.5	587.3	580.1	564.8
32.5°	806.2	760.8	721.9	685.2	633.7	617.4	593.2	569.7	538.5	533.1	518.8
35°	763.4	712.6	671.5	632.7	581.2	564.3	541.2	520.5	492.0	489.8	480.0
37.5°	709.8	656.7	613.0	575.7	527.0	518.2	494.7	479.5	455.9	458.1	453.2
40°	649.1	594.8	553.3	520.5	478.3	470.7	456.4	445.0	424.7	430.7	431.3
42.5°	587.8	533.6	495.8	466.3	430.2	425.2	415.4	408.8	393.5	405.5	410.5
45°	518.2	467.9	435.7	413.2	386.4	386.4	381.5	380.9	370.5	387.5	392.4
47.5°	450.9	411.5	389.1	375.4	356.8	365.6	364.0	368.4	360.7	378.2	382.6
50°	400.1	372.7	359.1	352.4	339.3	353.0	356.3	362.3	355.8	371.0	374.3
52.5°	367.8	349.7	342.1	340.4	331.1	348.1	353.5	359.1	351.4	365.6	365.0
55°	349.7	337.7	334.9	338.2	331.1	347.5	353.0	356.8	350.3	360.1	359.6
57.5°	343.1	336.6	338.2	343.1	338.2	351.9	354.7	359.1	352.4	356.8	359.1
60°	342.6	342.6	349.1	355.8	352.4	362.3	364.0	363.4	357.4	357.9	359.1
62.5°	339.3	347.5	358.4	368.9	367.8	379.8	380.9	373.8	368.9	363.4	361.7
65°	328.9	342.6	358.4	372.7	374.9	393.5	395.7	388.6	385.2	375.9	368.9
67.5°	306.0	323.5	342.1	359.6	363.4	388.6	393.5	396.2	397.8	391.9	382.6
70°	267.1	285.1	304.3	324.6	330.0	357.9	368.4	380.9	390.8	399.6	396.2
72.5°	217.3	233.6	250.1	268.7	276.9	306.0	319.6	341.5	356.8	379.3	388.6
75°	172.4	182.3	192.1	203.6	210.1	238.7	255.5	281.8	302.7	333.9	354.7
77.5°	135.7	140.7	145.6	150.5	153.2	169.1	182.8	209.1	233.1	272.5	303.2
80°	104.5	107.3	107.8	109.5	108.3	116.0	120.9	136.9	157.6	196.5	232.6
82.5°	67.3	69.5	70.6	73.3	67.8	77.7	81.0	82.7	93.6	122.0	147.8
85°	37.7	38.4	38.9	40.0	32.3	42.1	42.7	40.0	38.9	50.3	56.9
87.5°	9.3	8.8	9.3	9.3	3.8	8.8	8.8	6.0	4.4	8.2	6.5
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):

	135°	145°	155°	165°	175°	180°
0°	745.4	745.4	745.4	745.4	745.4	745.4
2.5°	686.8	685.8	686.3	683.5	682.4	683.0
5°	675.9	673.7	673.7	672.1	669.8	669.8
7.5°	680.8	676.5	674.8	671.5	668.2	668.8
10°	688.4	680.8	675.4	670.4	666.6	666.6
12.5°	693.4	679.8	671.5	664.9	660.5	660.5
15°	694.5	673.7	661.6	654.6	650.2	650.2
17.5°	687.9	661.6	646.3	637.0	632.1	633.2
20°	671.5	639.2	621.1	611.3	606.4	606.9
22.5°	645.8	608.6	587.8	576.3	571.3	571.3
25°	610.8	570.3	547.8	538.5	534.2	534.2
27.5°	570.8	529.2	509.5	502.4	499.7	499.7
30°	525.9	491.4	477.2	472.3	467.9	467.9
32.5°	488.2	463.5	458.6	452.0	440.6	440.0
35°	458.1	455.3	451.5	431.8	415.4	413.2
37.5°	441.6	458.1	434.0	400.1	386.9	386.4
40°	432.9	448.3	406.6	390.3	388.6	388.6
42.5°	412.1	423.1	405.0	395.7	395.7	396.2
45°	390.3	399.6	408.8	400.6	403.3	403.9
47.5°	374.9	393.5	408.8	401.7	407.1	410.5
50°	360.7	388.0	400.6	400.6	406.6	407.1
52.5°	357.4	380.3	392.9	399.0	399.6	396.8
55°	357.9	374.3	386.9	394.6	391.3	391.3
57.5°	357.4	371.0	382.0	384.7	386.4	386.4
60°	357.9	366.7	375.4	374.3	379.8	379.8
62.5°	359.6	360.7	365.0	364.0	372.1	372.1
65°	363.4	353.0	350.3	351.4	361.2	360.7
67.5°	370.5	342.6	333.9	334.4	348.6	346.5
70°	380.9	328.4	315.3	312.0	336.0	332.2
72.5°	384.2	312.0	291.1	287.9	302.1	291.1
75°	368.9	298.8	265.5	254.5	248.5	245.2
77.5°	328.9	290.6	238.7	215.6	206.3	204.2
80°	272.5	273.6	203.6	176.3	204.7	204.2
82.5°	205.8	236.4	163.1	152.7	148.3	123.7
85°	99.6	177.9	125.3	105.1	62.9	59.6
87.5°	8.8	74.5	72.2	47.1	21.4	20.3
90°	0.0	0.0	0.0	0.0	0.0	0.0

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