

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: P196204

Luminaire Tested: **NAV-AF-04-D-UNV-SLL-600**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196204
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24264)
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-SLL-600
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 4000K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND SPILL LIGHT
ELIMINATOR LEFT OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14522.8 lumens
Efficiency: N/A
Efficacy: 112.6 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B2 - U0 - G3

Input Watts (W): 129
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

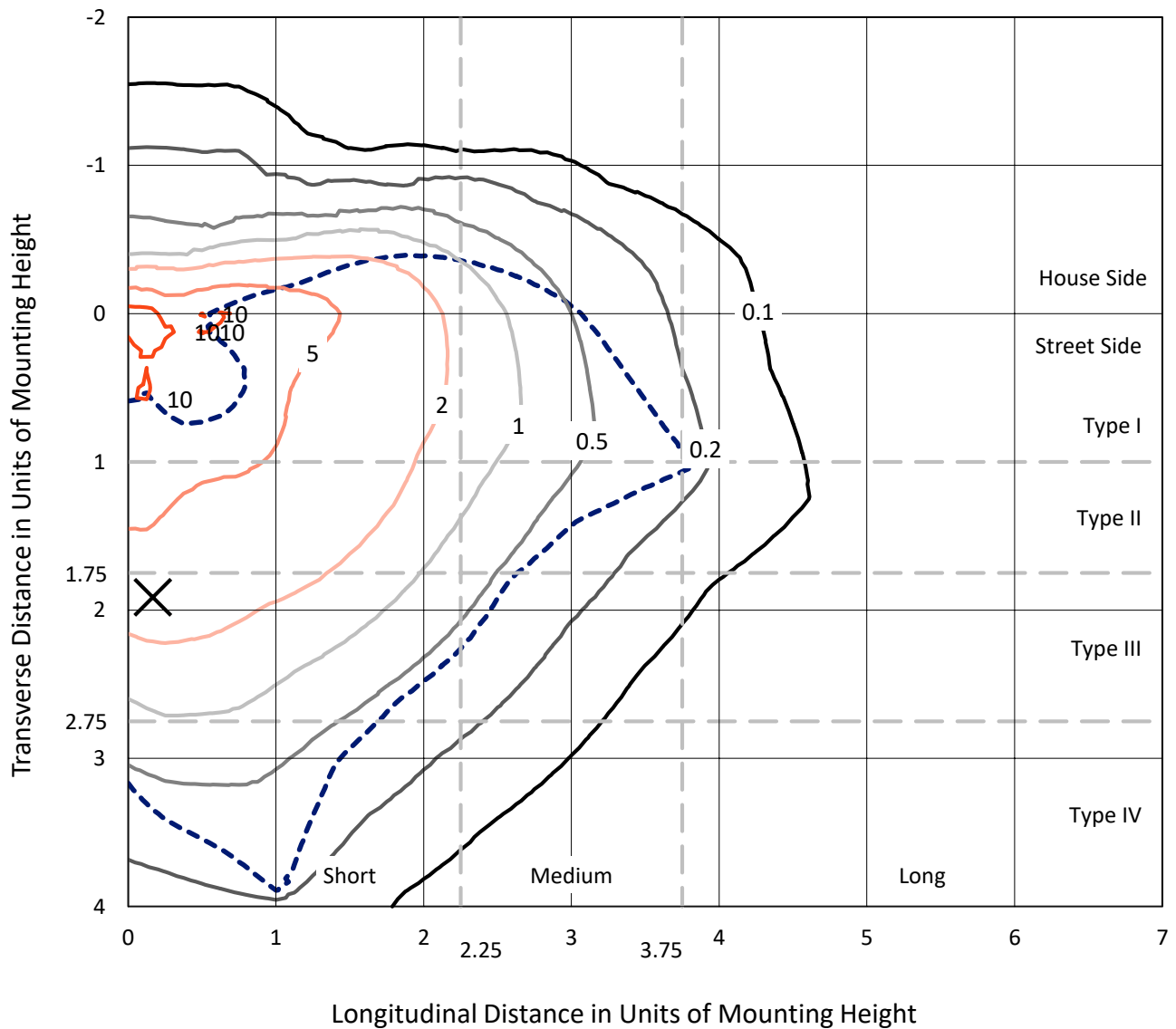


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Iso-Footcandle Lines of Horizontal Illumination

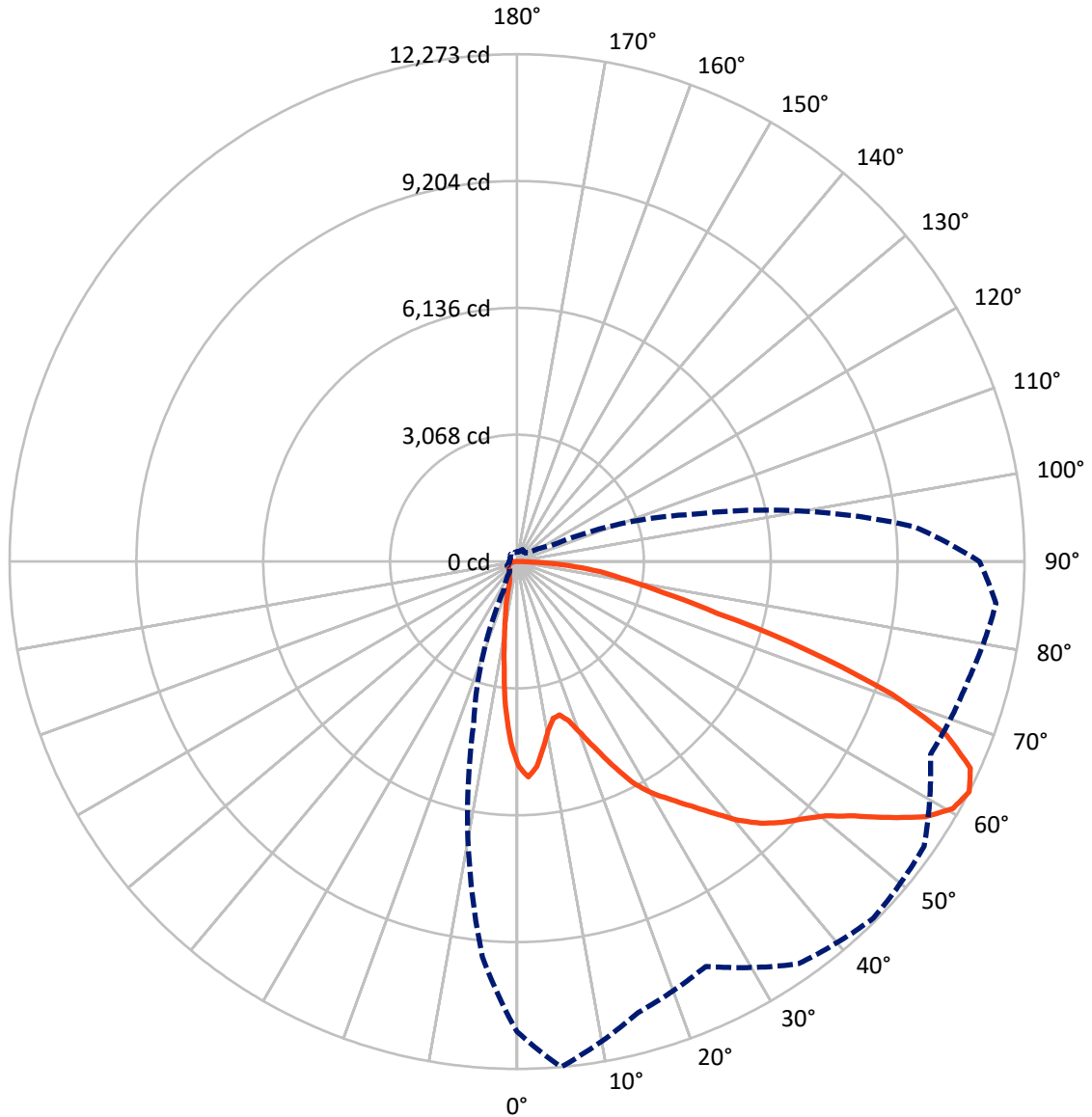
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 14.2 fc
 Type IV - Short - Non-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 5-Deg Lateral - - - Horizontal Cone Through 62.5-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2572.7	0.0	2572.7
	% Fixture	17.7	0.0	17.7
Street Side	Lumens	11950.1	0.0	11950.1
	% Fixture	82.3	0.0	82.3
Total	Lumens	14522.8	0.0	14522.8
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	360.1	2.5
10°-20°	657.7	4.5
20°-30°	945.9	6.5
30°-40°	1448.7	10.0
40°-50°	2118.1	14.6
50°-60°	3081.8	21.2
60°-70°	3570.7	24.6
70°-80°	1861.4	12.8
80°-90°	478.5	3.3
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°	14522.8	100.0
0°-180°	14522.8	100.0



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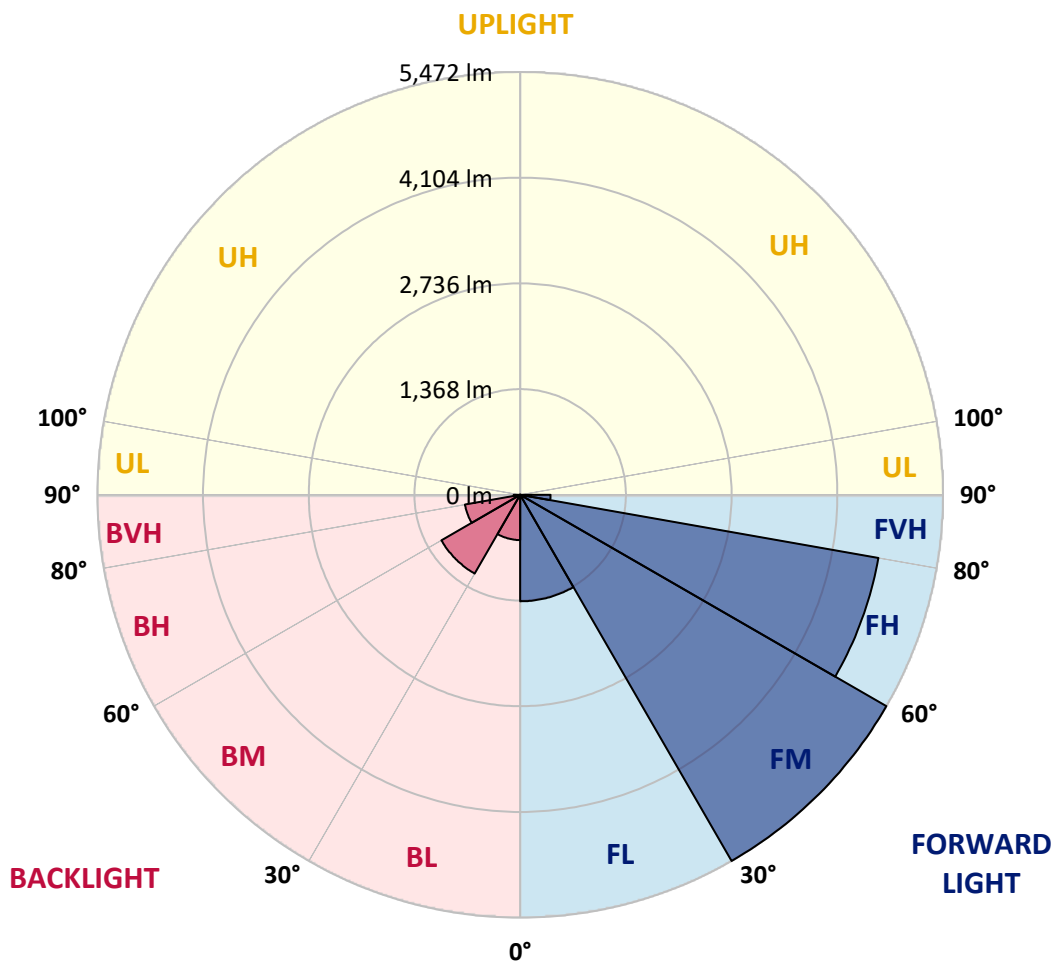
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1378.3	9.5			
FM	(30°-60°)	5471.5	37.7			
FH	(60°-80°)	4706.6	32.4			G2/5000
FVH	(80°-90°)	393.6	2.7			G3/500
BL	(0°-30°)	585.3	4.0	B2/1000		
BM	(30°-60°)	1177.1	8.1	B2/2500		
BH	(60°-80°)	725.4	5.0	B2/1000		G2/1000
BVH	(80°-90°)	84.8	0.6			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G3

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1
2.5°	5111.2	5219.6	5343.9	5506.0	5616.6	5660.8	5697.7	5635.5	5575.5	5462.9	5422.9
5°	4774.2	4982.7	5325.0	5650.3	5936.7	6101.0	6151.5	6036.7	5832.5	5537.6	5381.7
7.5°	4274.1	4548.9	5030.1	5509.2	5919.8	6193.7	6213.6	5986.2	5584.0	5100.6	4848.0
10°	3837.1	4147.7	4704.8	5240.7	5675.5	5955.6	5900.9	5581.8	5096.4	4546.8	4261.4
12.5°	3583.3	3894.0	4461.5	5005.9	5415.5	5521.9	5410.2	5141.8	4681.5	4130.9	3843.4
15°	3529.6	3849.7	4375.2	4834.3	5088.1	5019.5	4909.0	4773.2	4445.6	3995.0	3717.0
17.5°	3691.7	4049.8	4489.9	4741.6	4731.0	4566.8	4474.1	4500.5	4444.6	4142.4	3851.8
20°	4025.5	4448.8	4781.6	4716.3	4446.8	4216.1	4162.5	4368.8	4626.8	4512.0	4193.0
22.5°	4464.7	4946.9	5179.6	4788.9	4298.2	4049.8	4039.2	4361.5	4958.4	5071.2	4682.7
25°	4960.6	5522.9	5580.8	4917.4	4282.5	4035.0	4025.5	4475.2	5357.6	5625.0	5231.2
27.5°	5567.1	6104.2	5915.6	5089.1	4351.9	4078.2	4084.5	4669.0	5773.5	6172.6	5849.3
30°	6024.2	6516.9	6122.1	5257.6	4463.5	4154.0	4169.9	4878.5	5997.8	6552.7	6343.2
32.5°	6451.6	6869.6	6320.0	5423.9	4626.8	4266.7	4321.5	5139.6	6267.3	6879.1	6809.7
35°	6924.5	7264.5	6540.0	5601.9	4860.6	4464.7	4543.6	5388.1	6534.8	7205.6	7271.9
37.5°	7460.4	7716.2	6779.1	5853.5	5197.5	4831.1	4875.3	5641.9	6721.2	7566.8	7767.9
40°	8018.5	8222.8	7040.3	6189.5	5687.2	5326.0	5347.1	5967.3	6867.6	7940.6	8249.1
42.5°	8497.6	8656.5	7302.4	6606.4	6249.4	5830.4	5848.3	6317.8	7007.6	8262.8	8634.4
45°	8880.8	8997.8	7549.9	7045.5	6849.7	6460.0	6455.8	6674.9	7195.0	8534.4	8930.4
47.5°	9237.9	9300.0	7825.8	7473.1	7471.9	7270.8	7120.2	7096.0	7444.6	8762.9	9188.3
50°	9646.3	9669.5	8190.1	7904.8	8232.2	8200.6	7922.7	7631.0	7767.9	9019.9	9458.9
52.5°	10215.0	10216.0	8641.8	8325.9	9071.4	9171.5	8848.2	8236.4	8245.9	9520.0	9926.5
55°	10883.6	10929.9	9230.4	8830.3	9949.6	10120.3	9815.9	8955.6	8932.4	10326.6	10684.6
57.5°	11400.7	11646.0	9916.0	9461.1	10769.9	10992.1	10746.7	9701.2	9775.9	11158.4	11310.1
60°	11545.9	12119.8	10599.3	10168.6	11463.8	11797.6	11548.1	10506.6	10601.5	11698.7	11490.2
62.5°	11372.2	12272.5	11295.3	10802.6	11875.5	12195.6	12016.6	11034.2	11274.2	11629.1	11185.9
65°	10857.3	12051.4	11899.8	11072.1	11638.6	11752.4	11704.9	11061.6	11639.6	10972.1	10344.5
67.5°	9654.8	11198.4	11630.2	10496.1	10531.9	10409.8	10347.7	10309.7	11229.0	9911.7	9017.7
70°	7852.1	9622.2	10344.5	8784.0	8518.6	8400.7	8196.4	8701.8	10092.8	8444.9	7421.4
72.5°	6048.3	7361.4	8485.0	6659.1	6107.3	6147.3	5915.6	6653.8	8360.7	6528.5	5666.1
75°	4295.2	5019.5	6772.8	4784.8	4054.0	4051.9	4034.0	4788.9	6596.9	4685.7	4145.6
77.5°	3095.8	3613.9	5305.9	3202.1	2876.7	2913.6	2854.6	3254.7	5142.8	3370.6	3071.5
80°	2469.2	2675.6	3429.5	2135.4	2141.8	2228.1	2215.5	2226.0	3383.2	2440.9	2296.5
82.5°	1774.3	2031.2	2621.9	1636.3	1416.3	1507.8	1525.7	1651.0	2387.2	1725.8	1514.2
85°	909.8	1238.3	2412.4	1417.3	885.6	734.0	844.4	1302.5	2073.3	1034.0	738.2
87.5°	176.9	343.3	1768.0	787.7	398.0	201.1	331.6	551.8	1205.6	187.4	91.7
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):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°	185°
0°	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1
2.5°	5354.4	5219.6	5093.3	4962.7	4861.6	4738.4	4617.3	4512.0	4409.9	4342.5	4363.6
5°	5223.8	4895.3	4600.5	4326.7	4166.7	3974.0	3802.3	3658.1	3546.5	3474.9	3518.0
7.5°	4629.0	4184.6	3796.0	3434.9	3207.4	2957.9	2757.8	2616.7	2530.3	2481.9	2552.5
10°	4020.3	3521.2	3085.2	2709.3	2485.1	2273.4	2092.2	1942.8	1826.9	1772.2	1800.6
12.5°	3584.3	3029.5	2572.4	2319.7	2127.0	1937.5	1750.1	1575.2	1427.8	1360.4	1346.7
15°	3421.2	2765.1	2298.7	2016.4	1824.8	1618.4	1416.3	1228.9	1088.8	1030.8	1018.2
17.5°	3492.8	2708.3	2136.5	1802.7	1524.7	1274.1	1046.7	869.7	766.6	734.0	737.1
20°	3744.4	2729.3	2005.9	1582.6	1239.4	942.4	714.9	592.8	548.6	541.2	549.6
22.5°	4089.8	2815.7	1911.2	1393.1	987.7	685.5	531.7	473.8	462.3	461.2	469.6
25°	4545.7	2984.2	1848.0	1224.6	780.3	543.3	463.3	430.7	421.1	423.3	431.7
27.5°	5082.7	3197.9	1806.9	1079.3	641.3	484.4	432.8	404.4	394.9	397.0	403.2
30°	5573.4	3385.4	1745.9	969.8	576.0	463.3	415.9	387.5	374.9	374.9	379.1
32.5°	6012.5	3547.5	1674.3	887.6	516.0	415.9	377.0	354.9	345.3	348.5	350.7
35°	6402.1	3632.8	1618.4	839.2	467.5	383.3	344.3	321.2	308.5	310.7	313.7
37.5°	6785.4	3665.4	1581.6	812.9	432.8	363.2	327.4	308.5	294.8	292.8	291.6
40°	7149.7	3658.1	1546.8	805.6	409.6	348.5	316.9	300.1	286.4	283.3	282.2
42.5°	7464.6	3633.8	1514.2	785.5	393.8	338.0	308.5	293.8	280.1	275.9	273.7
45°	7752.0	3619.1	1478.4	748.7	402.2	333.8	304.3	288.5	275.9	270.6	268.5
47.5°	8071.1	3671.8	1438.4	708.7	400.2	334.8	304.3	286.4	273.7	268.5	266.4
50°	8451.2	3849.7	1388.9	653.9	381.2	358.0	303.3	283.3	271.7	268.5	264.3
52.5°	8988.3	4138.2	1320.4	583.4	366.4	382.3	302.2	278.0	268.5	263.2	258.0
55°	9724.3	4426.7	1231.9	508.6	343.3	365.4	304.3	271.7	261.2	255.8	249.6
57.5°	10327.6	4645.7	1120.3	446.4	322.2	345.3	301.2	264.3	252.7	247.5	242.2
60°	10288.7	4666.8	1014.1	406.4	309.5	310.7	308.5	259.0	245.3	241.1	236.9
62.5°	9651.6	4406.8	915.0	386.5	300.1	283.3	314.9	252.7	237.9	233.7	230.6
65°	8591.3	3801.3	862.3	386.5	291.6	268.5	274.9	244.3	230.6	226.4	224.3
67.5°	7246.6	3054.7	812.9	394.9	280.1	258.0	249.6	235.9	223.2	219.0	216.9
70°	5808.2	2403.9	778.2	390.7	269.5	246.4	235.9	224.3	211.6	210.6	208.5
72.5°	4556.2	1931.1	762.4	390.7	253.8	232.7	222.2	213.8	201.1	200.1	196.9
75°	3650.7	1449.9	697.0	383.3	237.9	214.8	205.3	197.9	185.4	186.4	184.2
77.5°	2827.2	1025.6	582.3	345.3	218.0	194.8	187.4	182.2	167.5	168.5	168.5
80°	2211.3	667.6	451.7	286.4	194.8	171.7	166.3	162.1	146.4	148.4	148.4
82.5°	1515.2	397.0	327.4	230.6	167.5	146.4	145.4	139.0	122.1	123.2	125.3
85°	827.7	261.2	218.0	170.6	131.7	119.0	116.9	113.8	97.9	97.9	99.0
87.5°	152.7	140.0	128.5	112.6	88.5	85.3	82.1	85.3	73.8	71.6	71.6
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):

	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°	285°
0°	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1
2.5°	4314.1	4241.5	4190.8	4146.6	4040.2	4047.7	4062.4	4083.4	4017.1	4051.9	4095.1
5°	3474.9	3414.8	3369.5	3299.0	3150.5	3097.9	3064.1	3049.4	2950.5	2971.5	3017.8
7.5°	2561.9	2560.9	2545.1	2466.1	2287.1	2178.6	2107.0	2084.9	2023.8	2047.0	2117.5
10°	1803.8	1822.7	1815.3	1744.7	1584.8	1506.8	1491.1	1535.2	1536.3	1581.6	1702.7
12.5°	1303.5	1293.1	1283.6	1225.7	1105.6	1093.0	1128.8	1189.9	1204.6	1253.0	1379.4
15°	972.9	947.7	942.4	897.1	818.2	829.7	856.1	887.6	888.7	922.4	1026.6
17.5°	729.7	729.7	738.2	708.7	651.8	646.5	632.8	624.4	611.8	625.4	682.3
20°	566.5	592.8	613.9	597.0	545.4	520.2	493.9	477.0	467.5	468.6	485.4
22.5°	485.4	506.5	533.9	525.4	482.2	449.6	432.8	421.1	413.8	413.8	423.3
25°	444.4	458.1	483.3	479.2	442.2	415.9	402.2	390.7	382.3	381.2	390.7
27.5°	411.7	420.1	437.0	434.9	397.0	380.1	371.7	364.4	359.1	358.0	367.4
30°	382.3	386.5	394.9	391.7	363.2	346.5	343.3	340.1	337.0	338.0	351.7
32.5°	355.9	359.1	364.4	360.1	332.8	318.0	312.7	308.5	305.4	308.5	324.3
35°	326.4	335.9	342.2	340.1	310.7	292.8	281.1	270.6	266.4	269.5	287.4
37.5°	301.2	316.9	325.4	323.3	292.8	271.7	257.0	254.8	254.8	259.0	276.9
40°	291.6	303.3	310.7	307.5	276.9	255.8	247.5	244.3	245.3	249.6	268.5
42.5°	283.3	293.8	295.8	289.6	259.0	245.3	240.1	235.9	237.9	243.3	262.2
45°	275.9	284.3	283.3	273.7	244.3	234.8	234.8	231.7	232.7	236.9	257.0
47.5°	270.6	274.9	272.7	263.2	233.7	226.4	229.6	229.6	231.7	234.8	254.8
50°	262.2	265.4	263.2	254.8	225.4	219.0	222.2	226.4	228.5	231.7	249.6
52.5°	253.8	255.8	254.8	246.4	216.9	212.7	212.7	216.9	221.2	225.4	241.1
55°	245.3	247.5	248.5	242.2	210.6	206.4	205.3	205.3	209.5	215.8	232.7
57.5°	239.1	239.1	241.1	236.9	204.3	199.0	193.7	194.8	200.1	205.3	222.2
60°	231.7	232.7	235.9	231.7	195.9	187.4	183.2	188.5	190.6	195.9	213.8
62.5°	225.4	225.4	227.4	224.3	188.5	180.0	176.9	182.2	182.2	187.4	205.3
65°	220.0	219.0	219.0	218.0	181.1	172.7	170.6	172.7	173.7	179.0	196.9
67.5°	215.8	210.6	210.6	212.7	173.7	165.3	164.3	164.3	165.3	171.7	187.4
70°	206.4	202.1	201.1	208.5	166.3	155.8	155.8	153.7	155.8	159.0	175.8
72.5°	195.9	192.7	191.6	202.1	159.0	145.4	143.2	142.2	143.2	146.4	162.1
75°	182.2	180.0	182.2	197.9	151.6	133.7	130.5	129.5	129.5	130.5	147.4
77.5°	166.3	164.3	180.0	184.2	147.4	120.0	116.9	114.8	112.6	112.6	131.7
80°	147.4	146.4	173.7	155.8	141.1	105.3	100.0	96.9	94.7	93.7	112.6
82.5°	128.5	126.3	148.4	122.1	116.9	86.3	79.0	72.6	69.5	69.5	86.3
85°	105.3	104.2	116.9	89.5	81.1	63.2	52.7	47.4	43.2	43.2	55.9
87.5°	76.8	74.8	72.6	53.7	41.0	28.4	20.0	18.9	16.9	15.8	23.1
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):

	295°	305°	315°	325°	335°	345°	355°	360°
0°	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1	4951.1
2.5°	4159.3	4246.7	4412.0	4547.8	4728.9	4874.3	5039.6	5111.2
5°	3103.1	3241.1	3493.8	3709.6	4008.7	4285.7	4601.5	4774.2
7.5°	2226.0	2430.3	2621.9	2891.5	3265.3	3637.0	4045.6	4274.1
10°	1841.6	2029.1	2193.4	2385.0	2673.5	3091.6	3579.1	3837.1
12.5°	1525.7	1728.0	1901.7	2107.0	2349.2	2727.2	3283.2	3583.3
15°	1169.8	1390.0	1598.5	1845.9	2142.8	2574.6	3194.8	3529.6
17.5°	801.3	1037.2	1294.1	1596.3	1954.3	2510.3	3279.0	3691.7
20°	544.4	717.1	996.1	1354.2	1784.8	2479.7	3464.3	4025.5
22.5°	447.5	525.4	735.0	1126.7	1645.8	2513.5	3765.5	4464.7
25°	410.6	452.8	571.7	926.6	1539.4	2603.0	4172.9	4960.6
27.5°	387.5	423.3	501.2	783.4	1441.5	2725.1	4669.0	5567.1
30°	373.8	407.5	472.8	709.7	1352.0	2830.4	5095.4	6024.2
32.5°	343.3	368.6	422.3	667.6	1287.8	2915.7	5471.3	6451.6
35°	306.4	337.0	381.2	640.2	1285.6	2955.7	5825.1	6924.5
37.5°	292.8	322.2	354.9	625.4	1298.3	2989.4	6257.9	7460.4
40°	284.3	310.7	337.0	623.4	1308.9	3015.8	6681.2	8018.5
42.5°	276.9	303.3	333.8	608.7	1304.7	3051.6	7056.0	8497.6
45°	274.9	301.2	341.2	586.6	1303.5	3107.3	7354.0	8880.8
47.5°	272.7	312.7	339.1	562.3	1299.4	3225.3	7689.9	9237.9
50°	270.6	333.8	324.3	528.6	1267.7	3426.4	8141.7	9646.3
52.5°	269.5	337.0	308.5	482.2	1211.0	3724.4	8802.9	10215.0
55°	265.4	320.1	281.1	421.1	1128.8	4045.6	9511.6	10883.6
57.5°	255.8	285.4	265.4	361.2	1010.9	4269.8	10034.9	11400.7
60°	279.1	245.3	254.8	330.6	869.7	4309.9	10058.1	11545.9
62.5°	266.4	223.2	244.3	320.1	770.8	4048.7	9597.9	11372.2
65°	212.7	211.6	234.8	330.6	756.1	3464.3	8820.8	10857.3
67.5°	193.7	203.3	225.4	343.3	765.5	2729.3	7677.2	9654.8
70°	181.1	192.7	212.7	354.9	782.4	2150.1	6181.0	7852.1
72.5°	168.5	178.0	200.1	366.4	770.8	1696.4	4946.9	6048.3
75°	152.7	161.1	182.2	335.9	661.2	1246.8	3930.8	4295.2
77.5°	134.8	142.2	160.1	265.4	497.1	867.7	2944.2	3095.8
80°	115.8	119.0	132.7	193.7	324.3	519.1	2240.8	2469.2
82.5°	91.7	92.7	101.1	142.2	202.1	331.6	1554.2	1774.3
85°	58.9	61.1	65.3	100.0	135.8	212.7	793.9	909.8
87.5°	20.0	23.1	23.1	48.5	66.3	117.9	243.3	176.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)