

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: P196228

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196228
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-SLR-600
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 4000K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND SPILL LIGHT
ELIMINATOR RIGHT 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

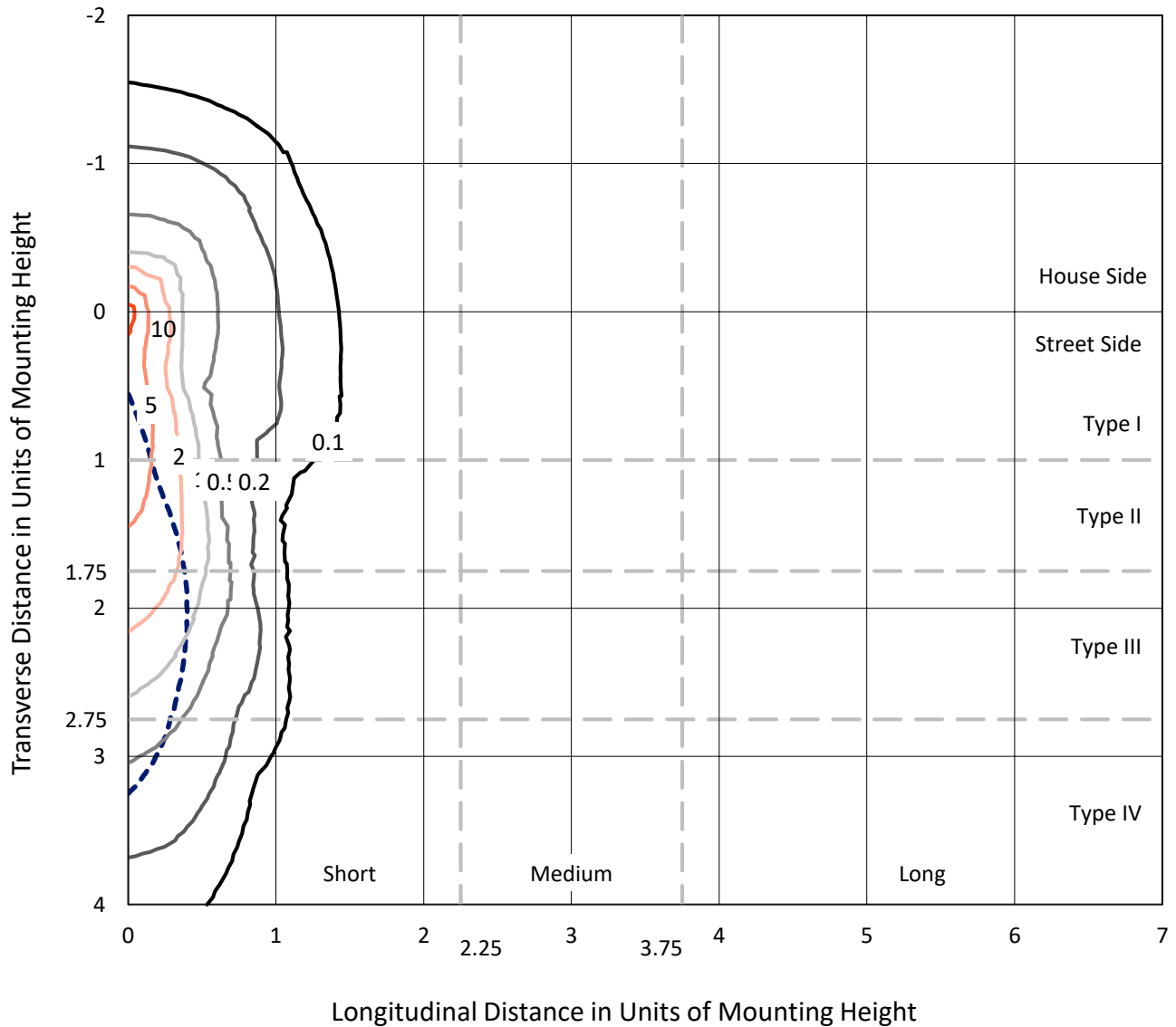
Input Watts (W): 129
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

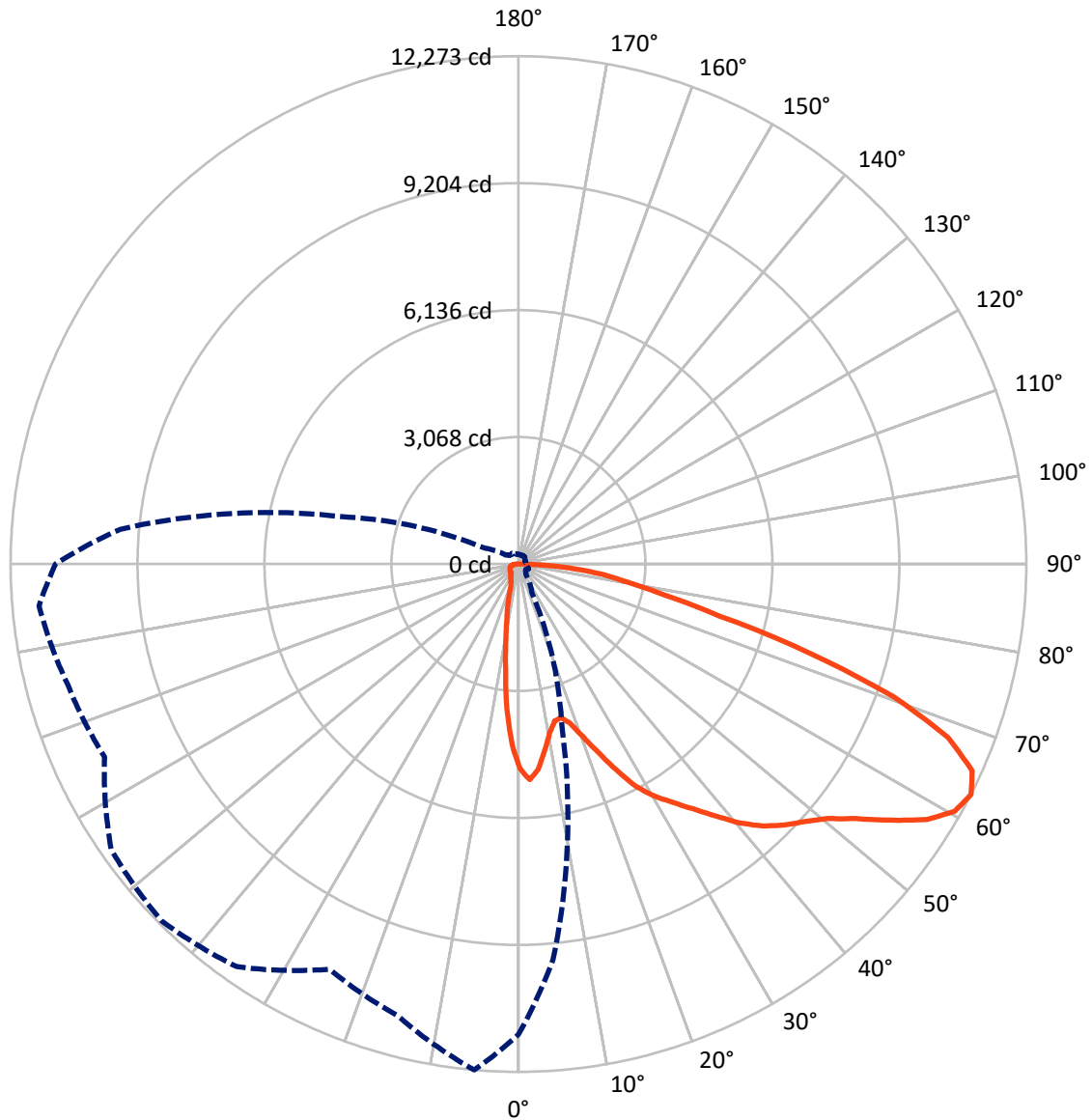
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 12.4 fc
 Type IV - Short - Non-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 355-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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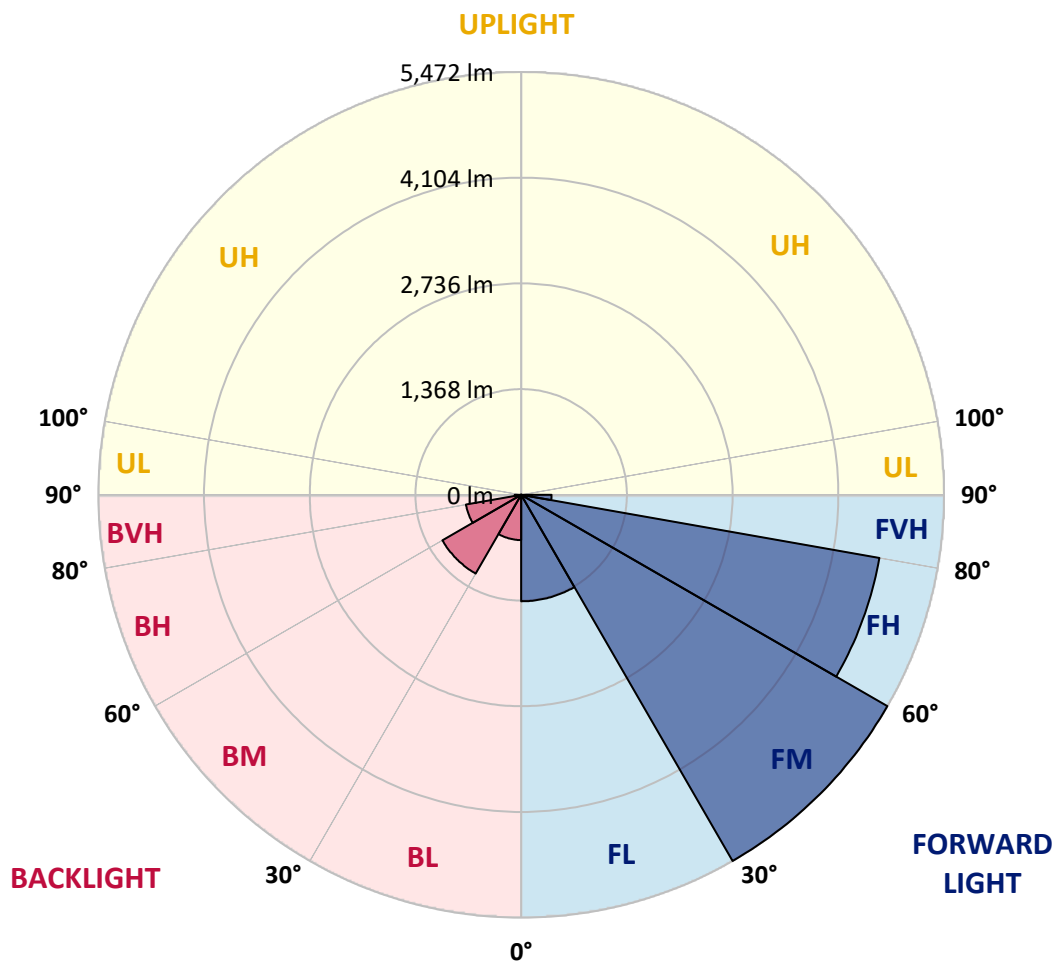
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

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	5039.6	4874.3	4728.9	4547.8	4412.0	4246.7	4159.3	4095.1	4051.9	4017.1
5°	4774.2	4601.5	4285.7	4008.7	3709.6	3493.8	3241.1	3103.1	3017.8	2971.5	2950.5
7.5°	4274.1	4045.6	3637.0	3265.3	2891.5	2621.9	2430.3	2226.0	2117.5	2047.0	2023.8
10°	3837.1	3579.1	3091.6	2673.5	2385.0	2193.4	2029.1	1841.6	1702.7	1581.6	1536.3
12.5°	3583.3	3283.2	2727.2	2349.2	2107.0	1901.7	1728.0	1525.7	1379.4	1253.0	1204.6
15°	3529.6	3194.8	2574.6	2142.8	1845.9	1598.5	1390.0	1169.8	1026.6	922.4	888.7
17.5°	3691.7	3279.0	2510.3	1954.3	1596.3	1294.1	1037.2	801.3	682.3	625.4	611.8
20°	4025.5	3464.3	2479.7	1784.8	1354.2	996.1	717.1	544.4	485.4	468.6	467.5
22.5°	4464.7	3765.5	2513.5	1645.8	1126.7	735.0	525.4	447.5	423.3	413.8	413.8
25°	4960.6	4172.9	2603.0	1539.4	926.6	571.7	452.8	410.6	390.7	381.2	382.3
27.5°	5567.1	4669.0	2725.1	1441.5	783.4	501.2	423.3	387.5	367.4	358.0	359.1
30°	6024.2	5095.4	2830.4	1352.0	709.7	472.8	407.5	373.8	351.7	338.0	337.0
32.5°	6451.6	5471.3	2915.7	1287.8	667.6	422.3	368.6	343.3	324.3	308.5	305.4
35°	6924.5	5825.1	2955.7	1285.6	640.2	381.2	337.0	306.4	287.4	269.5	266.4
37.5°	7460.4	6257.9	2989.4	1298.3	625.4	354.9	322.2	292.8	276.9	259.0	254.8
40°	8018.5	6681.2	3015.8	1308.9	623.4	337.0	310.7	284.3	268.5	249.6	245.3
42.5°	8497.6	7056.0	3051.6	1304.7	608.7	333.8	303.3	276.9	262.2	243.3	237.9
45°	8880.8	7354.0	3107.3	1303.5	586.6	341.2	301.2	274.9	257.0	236.9	232.7
47.5°	9237.9	7689.9	3225.3	1299.4	562.3	339.1	312.7	272.7	254.8	234.8	231.7
50°	9646.3	8141.7	3426.4	1267.7	528.6	324.3	333.8	270.6	249.6	231.7	228.5
52.5°	10215.0	8802.9	3724.4	1211.0	482.2	308.5	337.0	269.5	241.1	225.4	221.2
55°	10883.6	9511.6	4045.6	1128.8	421.1	281.1	320.1	265.4	232.7	215.8	209.5
57.5°	11400.7	10034.9	4269.8	1010.9	361.2	265.4	285.4	255.8	222.2	205.3	200.1
60°	11545.9	10058.1	4309.9	869.7	330.6	254.8	245.3	279.1	213.8	195.9	190.6
62.5°	11372.2	9597.9	4048.7	770.8	320.1	244.3	223.2	266.4	205.3	187.4	182.2
65°	10857.3	8820.8	3464.3	756.1	330.6	234.8	211.6	212.7	196.9	179.0	173.7
67.5°	9654.8	7677.2	2729.3	765.5	343.3	225.4	203.3	193.7	187.4	171.7	165.3
70°	7852.1	6181.0	2150.1	782.4	354.9	212.7	192.7	181.1	175.8	159.0	155.8
72.5°	6048.3	4946.9	1696.4	770.8	366.4	200.1	178.0	168.5	162.1	146.4	143.2
75°	4295.2	3930.8	1246.8	661.2	335.9	182.2	161.1	152.7	147.4	130.5	129.5
77.5°	3095.8	2944.2	867.7	497.1	265.4	160.1	142.2	134.8	131.7	112.6	112.6
80°	2469.2	2240.8	519.1	324.3	193.7	132.7	119.0	115.8	112.6	93.7	94.7
82.5°	1774.3	1554.2	331.6	202.1	142.2	101.1	92.7	91.7	86.3	69.5	69.5
85°	909.8	793.9	212.7	135.8	100.0	65.3	61.1	58.9	55.9	43.2	43.2
87.5°	176.9	243.3	117.9	66.3	48.5	23.1	23.1	20.0	23.1	15.8	16.9
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°	4083.4	4062.4	4047.7	4040.2	4146.6	4190.8	4241.5	4314.1	4363.6	4342.5	4409.9
5°	3049.4	3064.1	3097.9	3150.5	3299.0	3369.5	3414.8	3474.9	3518.0	3474.9	3546.5
7.5°	2084.9	2107.0	2178.6	2287.1	2466.1	2545.1	2560.9	2561.9	2552.5	2481.9	2530.3
10°	1535.2	1491.1	1506.8	1584.8	1744.7	1815.3	1822.7	1803.8	1800.6	1772.2	1826.9
12.5°	1189.9	1128.8	1093.0	1105.6	1225.7	1283.6	1293.1	1303.5	1346.7	1360.4	1427.8
15°	887.6	856.1	829.7	818.2	897.1	942.4	947.7	972.9	1018.2	1030.8	1088.8
17.5°	624.4	632.8	646.5	651.8	708.7	738.2	729.7	729.7	737.1	734.0	766.6
20°	477.0	493.9	520.2	545.4	597.0	613.9	592.8	566.5	549.6	541.2	548.6
22.5°	421.1	432.8	449.6	482.2	525.4	533.9	506.5	485.4	469.6	461.2	462.3
25°	390.7	402.2	415.9	442.2	479.2	483.3	458.1	444.4	431.7	423.3	421.1
27.5°	364.4	371.7	380.1	397.0	434.9	437.0	420.1	411.7	403.2	397.0	394.9
30°	340.1	343.3	346.5	363.2	391.7	394.9	386.5	382.3	379.1	374.9	374.9
32.5°	308.5	312.7	318.0	332.8	360.1	364.4	359.1	355.9	350.7	348.5	345.3
35°	270.6	281.1	292.8	310.7	340.1	342.2	335.9	326.4	313.7	310.7	308.5
37.5°	254.8	257.0	271.7	292.8	323.3	325.4	316.9	301.2	291.6	292.8	294.8
40°	244.3	247.5	255.8	276.9	307.5	310.7	303.3	291.6	282.2	283.3	286.4
42.5°	235.9	240.1	245.3	259.0	289.6	295.8	293.8	283.3	273.7	275.9	280.1
45°	231.7	234.8	234.8	244.3	273.7	283.3	284.3	275.9	268.5	270.6	275.9
47.5°	229.6	229.6	226.4	233.7	263.2	272.7	274.9	270.6	266.4	268.5	273.7
50°	226.4	222.2	219.0	225.4	254.8	263.2	265.4	262.2	264.3	268.5	271.7
52.5°	216.9	212.7	212.7	216.9	246.4	254.8	255.8	253.8	258.0	263.2	268.5
55°	205.3	205.3	206.4	210.6	242.2	248.5	247.5	245.3	249.6	255.8	261.2
57.5°	194.8	193.7	199.0	204.3	236.9	241.1	239.1	239.1	242.2	247.5	252.7
60°	188.5	183.2	187.4	195.9	231.7	235.9	232.7	231.7	236.9	241.1	245.3
62.5°	182.2	176.9	180.0	188.5	224.3	227.4	225.4	225.4	230.6	233.7	237.9
65°	172.7	170.6	172.7	181.1	218.0	219.0	219.0	220.0	224.3	226.4	230.6
67.5°	164.3	164.3	165.3	173.7	212.7	210.6	210.6	215.8	216.9	219.0	223.2
70°	153.7	155.8	155.8	166.3	208.5	201.1	202.1	206.4	208.5	210.6	211.6
72.5°	142.2	143.2	145.4	159.0	202.1	191.6	192.7	195.9	196.9	200.1	201.1
75°	129.5	130.5	133.7	151.6	197.9	182.2	180.0	182.2	184.2	186.4	185.4
77.5°	114.8	116.9	120.0	147.4	184.2	180.0	164.3	166.3	168.5	168.5	167.5
80°	96.9	100.0	105.3	141.1	155.8	173.7	146.4	147.4	148.4	148.4	146.4
82.5°	72.6	79.0	86.3	116.9	122.1	148.4	126.3	128.5	125.3	123.2	122.1
85°	47.4	52.7	63.2	81.1	89.5	116.9	104.2	105.3	99.0	97.9	97.9
87.5°	18.9	20.0	28.4	41.0	53.7	72.6	74.8	76.8	71.6	71.6	73.8
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):

	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°	4512.0	4617.3	4738.4	4861.6	4962.7	5093.3	5219.6	5354.4	5422.9	5462.9	5575.5
5°	3658.1	3802.3	3974.0	4166.7	4326.7	4600.5	4895.3	5223.8	5381.7	5537.6	5832.5
7.5°	2616.7	2757.8	2957.9	3207.4	3434.9	3796.0	4184.6	4629.0	4848.0	5100.6	5584.0
10°	1942.8	2092.2	2273.4	2485.1	2709.3	3085.2	3521.2	4020.3	4261.4	4546.8	5096.4
12.5°	1575.2	1750.1	1937.5	2127.0	2319.7	2572.4	3029.5	3584.3	3843.4	4130.9	4681.5
15°	1228.9	1416.3	1618.4	1824.8	2016.4	2298.7	2765.1	3421.2	3717.0	3995.0	4445.6
17.5°	869.7	1046.7	1274.1	1524.7	1802.7	2136.5	2708.3	3492.8	3851.8	4142.4	4444.6
20°	592.8	714.9	942.4	1239.4	1582.6	2005.9	2729.3	3744.4	4193.0	4512.0	4626.8
22.5°	473.8	531.7	685.5	987.7	1393.1	1911.2	2815.7	4089.8	4682.7	5071.2	4958.4
25°	430.7	463.3	543.3	780.3	1224.6	1848.0	2984.2	4545.7	5231.2	5625.0	5357.6
27.5°	404.4	432.8	484.4	641.3	1079.3	1806.9	3197.9	5082.7	5849.3	6172.6	5773.5
30°	387.5	415.9	463.3	576.0	969.8	1745.9	3385.4	5573.4	6343.2	6552.7	5997.8
32.5°	354.9	377.0	415.9	516.0	887.6	1674.3	3547.5	6012.5	6809.7	6879.1	6267.3
35°	321.2	344.3	383.3	467.5	839.2	1618.4	3632.8	6402.1	7271.9	7205.6	6534.8
37.5°	308.5	327.4	363.2	432.8	812.9	1581.6	3665.4	6785.4	7767.9	7566.8	6721.2
40°	300.1	316.9	348.5	409.6	805.6	1546.8	3658.1	7149.7	8249.1	7940.6	6867.6
42.5°	293.8	308.5	338.0	393.8	785.5	1514.2	3633.8	7464.6	8634.4	8262.8	7007.6
45°	288.5	304.3	333.8	402.2	748.7	1478.4	3619.1	7752.0	8930.4	8534.4	7195.0
47.5°	286.4	304.3	334.8	400.2	708.7	1438.4	3671.8	8071.1	9188.3	8762.9	7444.6
50°	283.3	303.3	358.0	381.2	653.9	1388.9	3849.7	8451.2	9458.9	9019.9	7767.9
52.5°	278.0	302.2	382.3	366.4	583.4	1320.4	4138.2	8988.3	9926.5	9520.0	8245.9
55°	271.7	304.3	365.4	343.3	508.6	1231.9	4426.7	9724.3	10684.6	10326.6	8932.4
57.5°	264.3	301.2	345.3	322.2	446.4	1120.3	4645.7	10327.6	11310.1	11158.4	9775.9
60°	259.0	308.5	310.7	309.5	406.4	1014.1	4666.8	10288.7	11490.2	11698.7	10601.5
62.5°	252.7	314.9	283.3	300.1	386.5	915.0	4406.8	9651.6	11185.9	11629.1	11274.2
65°	244.3	274.9	268.5	291.6	386.5	862.3	3801.3	8591.3	10344.5	10972.1	11639.6
67.5°	235.9	249.6	258.0	280.1	394.9	812.9	3054.7	7246.6	9017.7	9911.7	11229.0
70°	224.3	235.9	246.4	269.5	390.7	778.2	2403.9	5808.2	7421.4	8444.9	10092.8
72.5°	213.8	222.2	232.7	253.8	390.7	762.4	1931.1	4556.2	5666.1	6528.5	8360.7
75°	197.9	205.3	214.8	237.9	383.3	697.0	1449.9	3650.7	4145.6	4685.7	6596.9
77.5°	182.2	187.4	194.8	218.0	345.3	582.3	1025.6	2827.2	3071.5	3370.6	5142.8
80°	162.1	166.3	171.7	194.8	286.4	451.7	667.6	2211.3	2296.5	2440.9	3383.2
82.5°	139.0	145.4	146.4	167.5	230.6	327.4	397.0	1515.2	1514.2	1725.8	2387.2
85°	113.8	116.9	119.0	131.7	170.6	218.0	261.2	827.7	738.2	1034.0	2073.3
87.5°	85.3	82.1	85.3	88.5	112.6	128.5	140.0	152.7	91.7	187.4	1205.6
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):

	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°	5635.5	5697.7	5660.8	5616.6	5506.0	5343.9	5219.6	5111.2
5°	6036.7	6151.5	6101.0	5936.7	5650.3	5325.0	4982.7	4774.2
7.5°	5986.2	6213.6	6193.7	5919.8	5509.2	5030.1	4548.9	4274.1
10°	5581.8	5900.9	5955.6	5675.5	5240.7	4704.8	4147.7	3837.1
12.5°	5141.8	5410.2	5521.9	5415.5	5005.9	4461.5	3894.0	3583.3
15°	4773.2	4909.0	5019.5	5088.1	4834.3	4375.2	3849.7	3529.6
17.5°	4500.5	4474.1	4566.8	4731.0	4741.6	4489.9	4049.8	3691.7
20°	4368.8	4162.5	4216.1	4446.8	4716.3	4781.6	4448.8	4025.5
22.5°	4361.5	4039.2	4049.8	4298.2	4788.9	5179.6	4946.9	4464.7
25°	4475.2	4025.5	4035.0	4282.5	4917.4	5580.8	5522.9	4960.6
27.5°	4669.0	4084.5	4078.2	4351.9	5089.1	5915.6	6104.2	5567.1
30°	4878.5	4169.9	4154.0	4463.5	5257.6	6122.1	6516.9	6024.2
32.5°	5139.6	4321.5	4266.7	4626.8	5423.9	6320.0	6869.6	6451.6
35°	5388.1	4543.6	4464.7	4860.6	5601.9	6540.0	7264.5	6924.5
37.5°	5641.9	4875.3	4831.1	5197.5	5853.5	6779.1	7716.2	7460.4
40°	5967.3	5347.1	5326.0	5687.2	6189.5	7040.3	8222.8	8018.5
42.5°	6317.8	5848.3	5830.4	6249.4	6606.4	7302.4	8656.5	8497.6
45°	6674.9	6455.8	6460.0	6849.7	7045.5	7549.9	8997.8	8880.8
47.5°	7096.0	7120.2	7270.8	7471.9	7473.1	7825.8	9300.0	9237.9
50°	7631.0	7922.7	8200.6	8232.2	7904.8	8190.1	9669.5	9646.3
52.5°	8236.4	8848.2	9171.5	9071.4	8325.9	8641.8	10216.0	10215.0
55°	8955.6	9815.9	10120.3	9949.6	8830.3	9230.4	10929.9	10883.6
57.5°	9701.2	10746.7	10992.1	10769.9	9461.1	9916.0	11646.0	11400.7
60°	10506.6	11548.1	11797.6	11463.8	10168.6	10599.3	12119.8	11545.9
62.5°	11034.2	12016.6	12195.6	11875.5	10802.6	11295.3	12272.5	11372.2
65°	11061.6	11704.9	11752.4	11638.6	11072.1	11899.8	12051.4	10857.3
67.5°	10309.7	10347.7	10409.8	10531.9	10496.1	11630.2	11198.4	9654.8
70°	8701.8	8196.4	8400.7	8518.6	8784.0	10344.5	9622.2	7852.1
72.5°	6653.8	5915.6	6147.3	6107.3	6659.1	8485.0	7361.4	6048.3
75°	4788.9	4034.0	4051.9	4054.0	4784.8	6772.8	5019.5	4295.2
77.5°	3254.7	2854.6	2913.6	2876.7	3202.1	5305.9	3613.9	3095.8
80°	2226.0	2215.5	2228.1	2141.8	2135.4	3429.5	2675.6	2469.2
82.5°	1651.0	1525.7	1507.8	1416.3	1636.3	2621.9	2031.2	1774.3
85°	1302.5	844.4	734.0	885.6	1417.3	2412.4	1238.3	909.8
87.5°	551.8	331.6	201.1	398.0	787.7	1768.0	343.3	176.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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