

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: P196238

Luminaire Tested: **NAV-AF-02-D-UNV-SLR**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196238
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-02-D-UNV-SLR
Description: NAVION ROADWAY AND AREA LUMINAIRE
(2) 70 CRI, 4000K, 1050mA 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: 11004.9 lumens
Efficiency: N/A
Efficacy: 97.4 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B2 - U0 - G3

Input Watts (W): 113
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

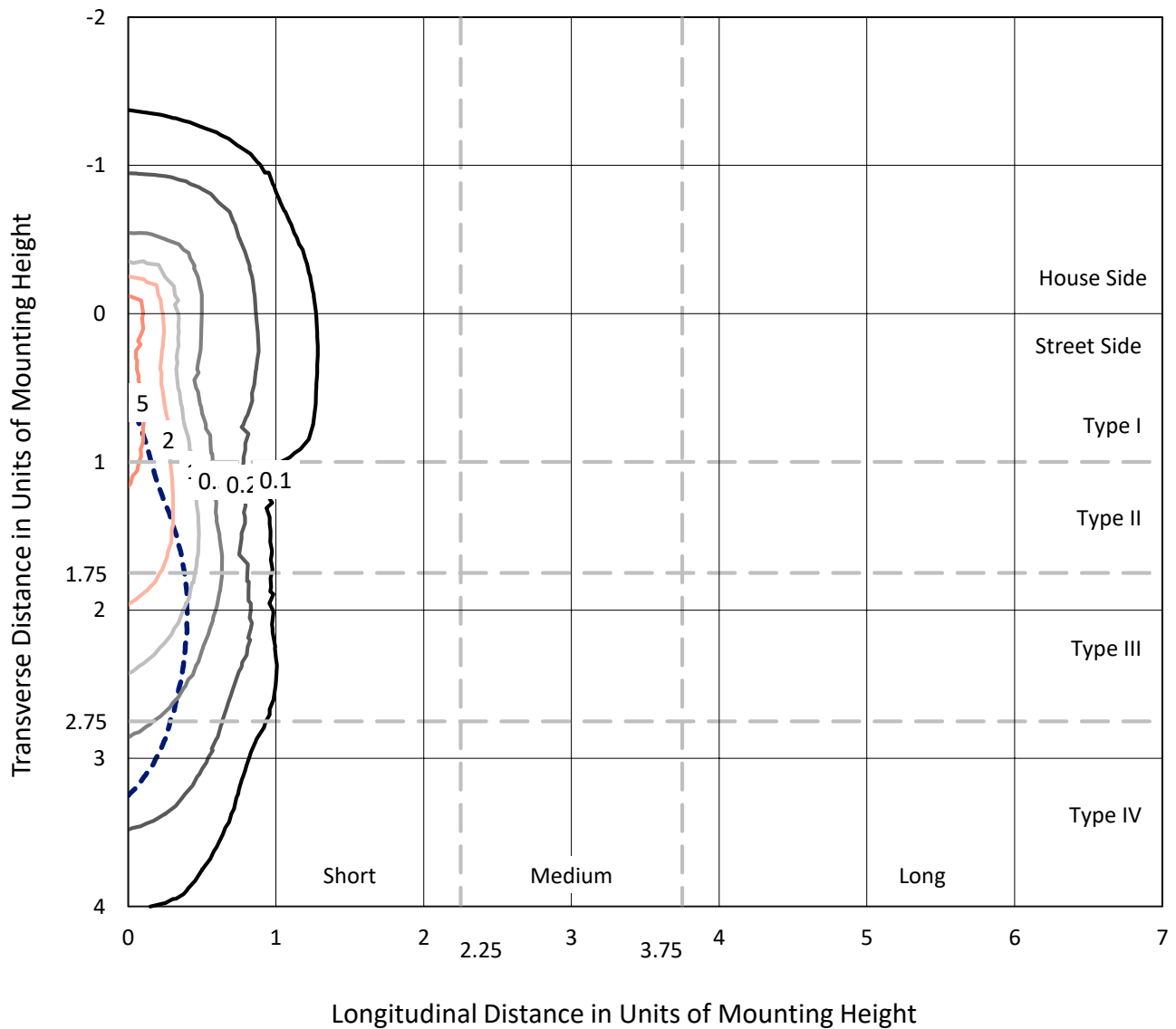


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Iso-Footcandle Lines of Horizontal Illumination

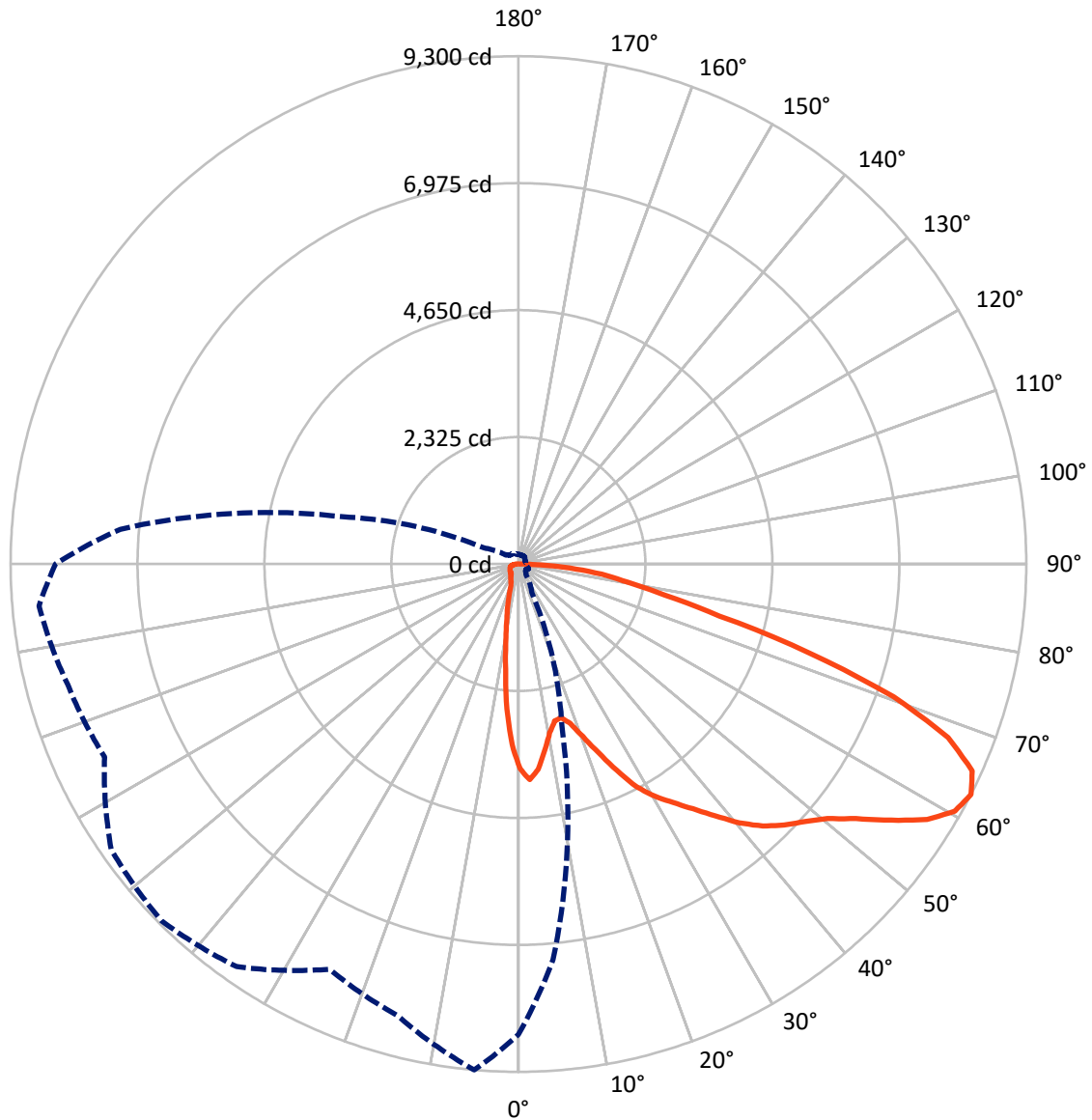
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 9.4 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	1949.5	0.0	1949.5
	% Fixture	17.7	0.0	17.7
Street Side	Lumens	9055.4	0.0	9055.4
	% Fixture	82.3	0.0	82.3
Total	Lumens	11004.9	0.0	11004.9
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	272.8	2.5
10°-20°	498.4	4.5
20°-30°	716.8	6.5
30°-40°	1097.8	10.0
40°-50°	1605.0	14.6
50°-60°	2335.3	21.2
60°-70°	2705.8	24.6
70°-80°	1410.5	12.8
80°-90°	362.6	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°	11004.9	100.0
0°-180°	11004.9	100.0



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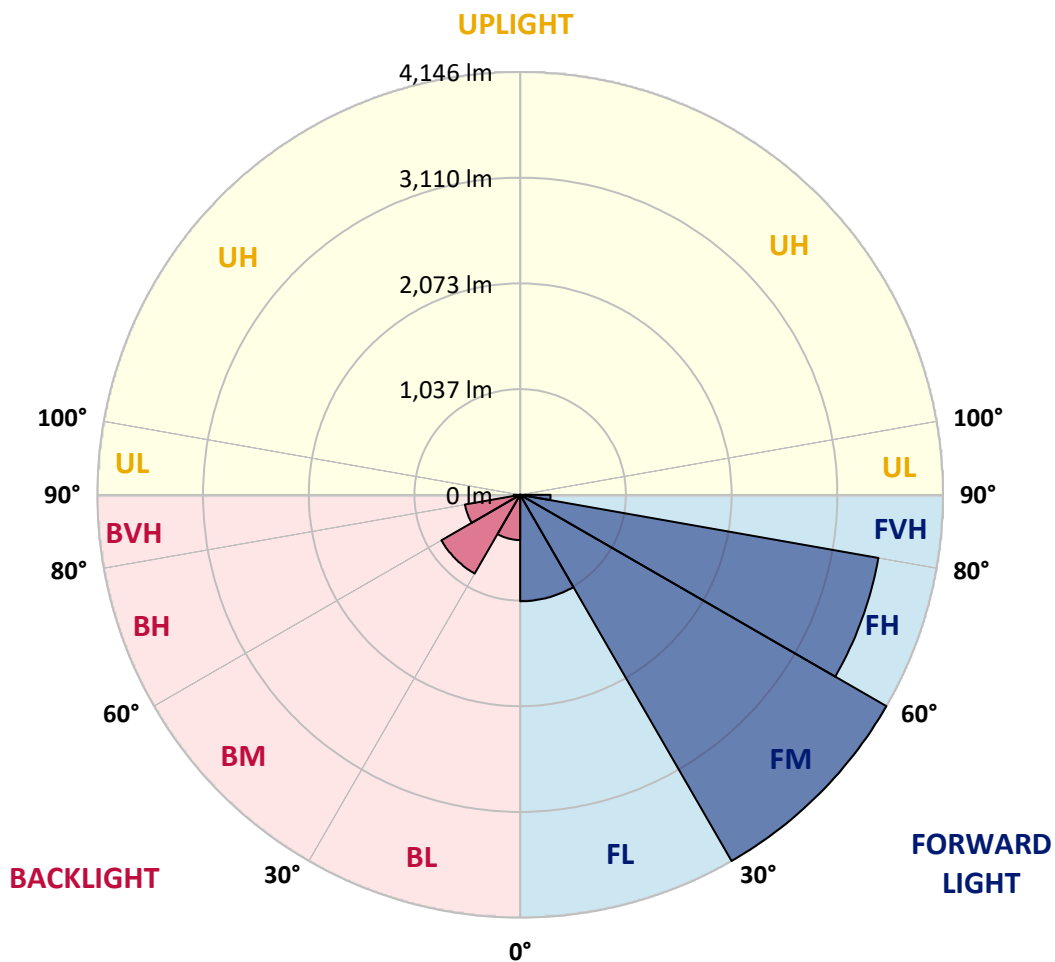
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1044.4	9.5			
FM	(30°-60°)	4146.1	37.7			
FH	(60°-80°)	3566.5	32.4			G2/5000
FVH	(80°-90°)	298.3	2.7			G3/500
BL	(0°-30°)	443.6	4.0	B1/500		
BM	(30°-60°)	892.0	8.1	B1/1000		
BH	(60°-80°)	549.7	5.0	B2/1000		G2/1000
BVH	(80°-90°)	64.3	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°	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8
2.5°	3873.1	3818.8	3693.6	3583.4	3446.2	3343.3	3218.0	3151.7	3103.1	3070.4	3044.0
5°	3617.8	3486.9	3247.5	3037.7	2811.1	2647.5	2456.0	2351.5	2286.8	2251.7	2235.8
7.5°	3238.8	3065.6	2756.0	2474.3	2191.1	1986.8	1841.6	1686.7	1604.6	1551.1	1533.6
10°	2907.6	2712.1	2342.7	2026.0	1807.2	1662.1	1537.6	1395.5	1290.2	1198.5	1164.1
12.5°	2715.3	2487.9	2066.6	1780.1	1596.6	1441.0	1309.4	1156.1	1045.3	949.5	912.8
15°	2674.6	2420.9	1950.9	1623.7	1398.8	1211.3	1053.2	886.5	778.0	699.0	673.4
17.5°	2797.5	2484.7	1902.2	1480.9	1209.6	980.6	785.9	607.2	517.0	473.9	463.6
20°	3050.4	2625.1	1879.1	1352.4	1026.1	754.8	543.4	412.6	367.9	355.1	354.2
22.5°	3383.2	2853.3	1904.6	1247.2	853.8	556.9	398.1	339.1	320.8	313.5	313.5
25°	3758.9	3162.1	1972.5	1166.6	702.2	433.2	343.1	311.2	296.0	288.9	289.6
27.5°	4218.5	3538.0	2065.0	1092.3	593.6	379.8	320.8	293.6	278.4	271.3	272.1
30°	4564.8	3861.1	2144.8	1024.5	537.8	358.2	308.8	283.3	266.5	256.1	255.3
32.5°	4888.8	4145.9	2209.5	975.9	505.8	320.0	279.3	260.1	245.7	233.7	231.4
35°	5247.1	4414.0	2239.8	974.3	485.1	288.9	255.3	232.2	217.8	204.3	201.8
37.5°	5653.2	4742.0	2265.3	983.9	473.9	268.9	244.2	221.8	209.8	196.3	193.1
40°	6076.1	5062.8	2285.3	991.9	472.4	255.3	235.4	215.4	203.5	189.1	185.9
42.5°	6439.2	5346.9	2312.4	988.6	461.1	253.0	229.8	209.8	198.7	184.3	180.3
45°	6729.6	5572.6	2354.6	987.9	444.5	258.5	228.2	208.3	194.7	179.5	176.4
47.5°	7000.1	5827.1	2444.0	984.6	426.1	257.0	237.0	206.6	193.1	177.9	175.5
50°	7309.7	6169.5	2596.5	960.7	400.6	245.7	253.0	205.1	189.1	175.5	173.2
52.5°	7740.6	6670.6	2822.2	917.6	365.4	233.7	255.3	204.3	182.7	170.7	167.6
55°	8247.2	7207.5	3065.6	855.4	319.2	213.1	242.5	201.1	176.4	163.6	158.8
57.5°	8639.0	7604.1	3235.5	766.0	273.6	201.1	216.3	193.8	168.4	155.6	151.6
60°	8749.1	7621.7	3265.9	659.1	250.5	193.1	185.9	211.4	161.9	148.4	144.4
62.5°	8617.4	7273.0	3067.9	584.1	242.5	185.2	169.2	201.8	155.6	142.0	138.0
65°	8227.3	6684.2	2625.1	572.9	250.5	177.9	160.4	161.2	149.2	135.6	131.7
67.5°	7316.0	5817.6	2068.2	580.1	260.1	170.7	154.0	146.8	142.0	130.0	125.3
70°	5950.0	4683.8	1629.4	592.8	268.9	161.2	146.0	137.3	133.3	120.5	118.0
72.5°	4583.2	3748.6	1285.4	584.1	277.6	151.6	134.8	127.7	122.9	110.9	108.5
75°	3254.7	2978.6	944.7	501.0	254.5	138.0	122.0	115.7	111.7	98.9	98.1
77.5°	2345.8	2231.0	657.5	376.7	201.1	121.3	107.7	102.1	99.7	85.4	85.4
80°	1871.1	1698.0	393.3	245.7	146.8	100.6	90.1	87.8	85.4	71.0	71.8
82.5°	1344.5	1177.7	251.3	153.2	107.7	76.6	70.2	69.5	65.5	52.7	52.7
85°	689.4	601.6	161.2	102.9	75.8	49.5	46.2	44.7	42.2	32.7	32.7
87.5°	134.0	184.3	89.4	50.2	36.7	17.6	17.6	15.1	17.6	12.0	12.8
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):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°	185°
0°	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8
2.5°	3094.3	3078.4	3067.2	3061.6	3142.2	3175.6	3214.0	3269.0	3306.6	3290.6	3341.7
5°	2310.7	2321.9	2347.5	2387.4	2499.9	2553.3	2587.7	2633.1	2665.8	2633.1	2687.4
7.5°	1579.8	1596.6	1650.8	1733.1	1868.7	1928.6	1940.5	1941.4	1934.1	1880.7	1917.4
10°	1163.4	1129.8	1141.8	1200.8	1322.2	1375.6	1381.2	1366.9	1364.4	1342.9	1384.4
12.5°	901.6	855.4	828.3	837.8	928.7	972.6	979.9	987.9	1020.5	1030.9	1082.0
15°	672.7	648.7	628.7	620.0	679.9	714.1	718.1	737.2	771.6	781.1	825.0
17.5°	473.1	479.6	489.9	493.9	536.9	559.3	552.9	552.9	558.5	556.2	580.8
20°	361.4	374.2	394.1	413.3	452.5	465.1	449.2	429.2	416.5	410.1	415.7
22.5°	319.2	328.0	340.7	365.4	398.1	404.6	383.8	367.9	355.9	349.4	350.3
25°	296.0	304.8	315.2	335.1	363.0	366.2	347.1	336.8	327.1	320.8	319.2
27.5°	276.1	281.6	288.1	300.8	329.5	331.1	318.3	312.0	305.6	300.8	299.2
30°	257.7	260.1	262.5	275.3	296.9	299.2	292.9	289.6	287.2	284.1	284.1
32.5°	233.7	237.0	241.0	252.2	272.9	276.1	272.1	269.6	265.7	264.1	261.7
35°	205.1	213.1	221.8	235.4	257.7	259.3	254.5	247.3	237.7	235.4	233.7
37.5°	193.1	194.7	205.8	221.8	245.0	246.5	240.2	228.2	221.1	221.8	223.4
40°	185.2	187.5	193.8	209.8	233.0	235.4	229.8	221.1	213.8	214.6	217.1
42.5°	178.7	181.9	185.9	196.3	219.4	224.2	222.6	214.6	207.5	209.1	212.3
45°	175.5	177.9	177.9	185.2	207.5	214.6	215.4	209.1	203.5	205.1	209.1
47.5°	173.9	173.9	171.5	177.2	199.5	206.6	208.3	205.1	201.8	203.5	207.5
50°	171.5	168.4	165.9	170.7	193.1	199.5	201.1	198.7	200.3	203.5	205.8
52.5°	164.4	161.2	161.2	164.4	186.7	193.1	193.8	192.3	195.5	199.5	203.5
55°	155.6	155.6	156.4	159.6	183.5	188.3	187.5	185.9	189.1	193.8	197.8
57.5°	147.6	146.8	150.8	154.8	179.5	182.7	181.2	181.2	183.5	187.5	191.5
60°	142.8	138.8	142.0	148.4	175.5	178.7	176.4	175.5	179.5	182.7	185.9
62.5°	138.0	134.0	136.5	142.8	169.9	172.4	170.7	170.7	174.7	177.2	180.3
65°	130.8	129.3	130.8	137.3	165.2	165.9	165.9	166.7	169.9	171.5	174.7
67.5°	124.5	124.5	125.3	131.7	161.2	159.6	159.6	163.6	164.4	165.9	169.2
70°	116.5	118.0	118.0	126.0	157.9	152.4	153.2	156.4	157.9	159.6	160.4
72.5°	107.7	108.5	110.1	120.5	153.2	145.3	146.0	148.4	149.2	151.6	152.4
75°	98.1	98.9	101.4	114.9	150.0	138.0	136.5	138.0	139.6	141.3	140.5
77.5°	87.0	88.6	90.9	111.7	139.6	136.5	124.5	126.0	127.7	127.7	126.8
80°	73.4	75.8	79.8	106.9	118.0	131.7	110.9	111.7	112.5	112.5	110.9
82.5°	55.0	59.8	65.5	88.6	92.6	112.5	95.7	97.4	94.9	93.4	92.6
85°	35.9	39.9	47.9	61.5	67.8	88.6	79.0	79.8	75.0	74.2	74.2
87.5°	14.3	15.1	21.6	31.1	40.7	55.0	56.7	58.2	54.2	54.2	55.9
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):

	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°	285°
0°	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8
2.5°	3419.1	3498.9	3590.7	3684.0	3760.6	3859.5	3955.2	4057.4	4109.3	4139.6	4225.0
5°	2772.0	2881.2	3011.4	3157.3	3278.7	3486.1	3709.5	3958.4	4078.1	4196.2	4419.7
7.5°	1982.8	2089.8	2241.4	2430.4	2602.8	2876.4	3170.9	3507.6	3673.6	3865.1	4231.3
10°	1472.1	1585.5	1722.6	1883.0	2053.1	2337.9	2668.3	3046.4	3229.1	3445.4	3861.9
12.5°	1193.7	1326.2	1468.1	1611.8	1757.8	1949.3	2295.6	2716.1	2912.3	3130.2	3547.5
15°	931.2	1073.2	1226.4	1382.8	1528.0	1741.9	2095.3	2592.5	2816.6	3027.3	3368.8
17.5°	659.1	793.1	965.5	1155.4	1366.0	1618.9	2052.2	2646.7	2918.8	3139.0	3368.0
20°	449.2	541.8	714.1	939.2	1199.3	1520.0	2068.2	2837.4	3177.3	3419.1	3506.1
22.5°	359.1	402.9	519.5	748.5	1055.7	1448.2	2133.7	3099.1	3548.3	3842.7	3757.4
25°	326.3	351.1	411.7	591.3	928.0	1400.3	2261.3	3444.6	3964.0	4262.4	4059.8
27.5°	306.4	328.0	367.0	485.9	817.8	1369.2	2423.3	3851.5	4432.4	4677.3	4375.0
30°	293.6	315.2	351.1	436.5	734.9	1323.0	2565.3	4223.4	4806.6	4965.4	4544.9
32.5°	268.9	285.6	315.2	391.0	672.7	1268.7	2688.2	4556.1	5160.1	5212.8	4749.2
35°	243.4	261.0	290.4	354.2	636.0	1226.4	2752.8	4851.3	5510.4	5460.1	4951.9
37.5°	233.7	248.2	275.3	328.0	616.0	1198.5	2777.5	5141.8	5886.2	5733.8	5093.1
40°	227.4	240.2	264.1	310.4	610.4	1172.1	2772.0	5417.9	6250.8	6017.1	5204.0
42.5°	222.6	233.7	256.1	298.4	595.3	1147.4	2753.6	5656.4	6542.9	6261.3	5310.1
45°	218.6	230.6	253.0	304.8	567.3	1120.2	2742.4	5874.2	6767.1	6467.1	5452.1
47.5°	217.1	230.6	253.7	303.2	536.9	1090.0	2782.3	6116.0	6962.6	6640.3	5641.3
50°	214.6	229.8	271.3	288.9	495.5	1052.4	2917.1	6404.1	7167.6	6834.9	5886.2
52.5°	210.6	229.0	289.6	277.6	442.0	1000.5	3135.8	6811.0	7522.0	7214.0	6248.5
55°	205.8	230.6	276.9	260.1	385.3	933.5	3354.5	7368.7	8096.5	7825.2	6768.7
57.5°	200.3	228.2	261.7	244.2	338.3	848.9	3520.4	7826.0	8570.4	8455.5	7407.8
60°	196.3	233.7	235.4	234.6	308.0	768.4	3536.3	7796.4	8706.8	8864.8	8033.4
62.5°	191.5	238.6	214.6	227.4	292.9	693.4	3339.3	7313.7	8476.3	8812.2	8543.3
65°	185.2	208.3	203.5	221.1	292.9	653.5	2880.4	6510.2	7838.7	8314.2	8820.2
67.5°	178.7	189.1	195.5	212.3	299.2	616.0	2314.7	5491.2	6833.3	7510.8	8508.9
70°	169.9	178.7	186.7	204.3	296.0	589.6	1821.7	4401.2	5623.7	6399.3	7648.0
72.5°	161.9	168.4	176.4	192.3	296.0	577.7	1463.3	3452.6	4293.5	4947.1	6335.4
75°	150.0	155.6	162.8	180.3	290.4	528.3	1098.8	2766.4	3141.4	3550.8	4999.0
77.5°	138.0	142.0	147.6	165.2	261.7	441.2	777.1	2142.4	2327.5	2554.1	3897.0
80°	122.9	126.0	130.0	147.6	217.1	342.3	505.8	1675.6	1740.2	1849.6	2563.7
82.5°	105.4	110.1	110.9	126.8	174.7	248.2	300.8	1148.2	1147.4	1307.7	1808.9
85°	86.1	88.6	90.1	99.7	129.3	165.2	197.8	627.2	559.3	783.6	1571.0
87.5°	64.7	62.2	64.7	67.0	85.4	97.4	106.1	115.7	69.5	142.0	913.6
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°	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8	3751.8
2.5°	4270.4	4317.5	4289.5	4256.1	4172.3	4049.5	3955.2	3873.1
5°	4574.4	4661.4	4623.1	4498.6	4281.6	4035.0	3775.7	3617.8
7.5°	4536.2	4708.5	4693.3	4485.8	4174.7	3811.6	3447.0	3238.8
10°	4229.7	4471.5	4513.0	4300.8	3971.2	3565.1	3143.0	2907.6
12.5°	3896.2	4099.7	4184.3	4103.7	3793.3	3380.8	2950.7	2715.3
15°	3616.9	3719.9	3803.6	3855.5	3663.2	3315.3	2917.1	2674.6
17.5°	3410.3	3390.4	3460.5	3585.0	3593.0	3402.3	3068.8	2797.5
20°	3310.6	3154.2	3194.9	3369.6	3573.9	3623.3	3371.2	3050.4
22.5°	3304.9	3060.8	3068.8	3257.1	3628.9	3925.0	3748.6	3383.2
25°	3391.2	3050.4	3057.6	3245.1	3726.3	4229.0	4185.1	3758.9
27.5°	3538.0	3095.1	3090.3	3297.8	3856.3	4482.7	4625.5	4218.5
30°	3696.7	3159.7	3147.7	3382.4	3984.0	4639.1	4938.3	4564.8
32.5°	3894.6	3274.7	3233.1	3506.1	4110.0	4789.0	5205.6	4888.8
35°	4082.9	3443.0	3383.2	3683.1	4244.9	4955.9	5504.8	5247.1
37.5°	4275.2	3694.4	3660.8	3938.5	4435.6	5137.0	5847.1	5653.2
40°	4521.7	4051.8	4035.8	4309.5	4690.1	5334.9	6230.9	6076.1
42.5°	4787.5	4431.6	4418.0	4735.6	5006.1	5533.6	6559.7	6439.2
45°	5058.0	4892.1	4895.2	5190.5	5338.9	5721.1	6818.2	6729.6
47.5°	5377.1	5395.5	5509.6	5662.0	5662.7	5930.0	7047.2	7000.1
50°	5782.4	6003.5	6214.1	6238.1	5990.0	6206.1	7327.3	7309.7
52.5°	6241.3	6704.8	6949.8	6874.0	6309.2	6548.5	7741.4	7740.6
55°	6786.3	7438.2	7668.8	7539.5	6691.3	6994.5	8282.3	8247.2
57.5°	7351.2	8143.5	8329.4	8161.1	7169.2	7514.0	8824.9	8639.0
60°	7961.6	8750.7	8939.9	8686.9	7705.5	8031.8	9184.0	8749.1
62.5°	8361.3	9105.8	9241.4	8998.9	8185.8	8559.2	9299.6	8617.4
65°	8382.1	8869.6	8905.5	8819.4	8390.0	9017.2	9132.1	8227.3
67.5°	7812.4	7841.1	7888.2	7980.8	7953.6	8812.9	8485.8	7316.0
70°	6593.9	6210.9	6365.7	6455.1	6656.2	7838.7	7291.3	5950.0
72.5°	5042.0	4482.7	4658.2	4627.9	5046.0	6429.6	5578.3	4583.2
75°	3628.9	3056.8	3070.4	3071.9	3625.7	5132.1	3803.6	3254.7
77.5°	2466.3	2163.1	2207.8	2179.9	2426.4	4020.7	2738.4	2345.8
80°	1686.7	1678.8	1688.4	1622.9	1618.2	2598.8	2027.5	1871.1
82.5°	1251.2	1156.1	1142.6	1073.2	1239.9	1986.8	1539.1	1344.5
85°	987.0	640.0	556.2	671.1	1074.0	1828.0	938.4	689.4
87.5°	418.1	251.3	152.4	301.6	596.8	1339.7	260.1	134.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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