

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: P196239

Luminaire Tested: **NAV-AF-03-D-UNV-SLR**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196239
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-03-D-UNV-SLR
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 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: 16366.2 lumens
Efficiency: N/A
Efficacy: 98.6 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B2 - U0 - G3

Input Watts (W): 166
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

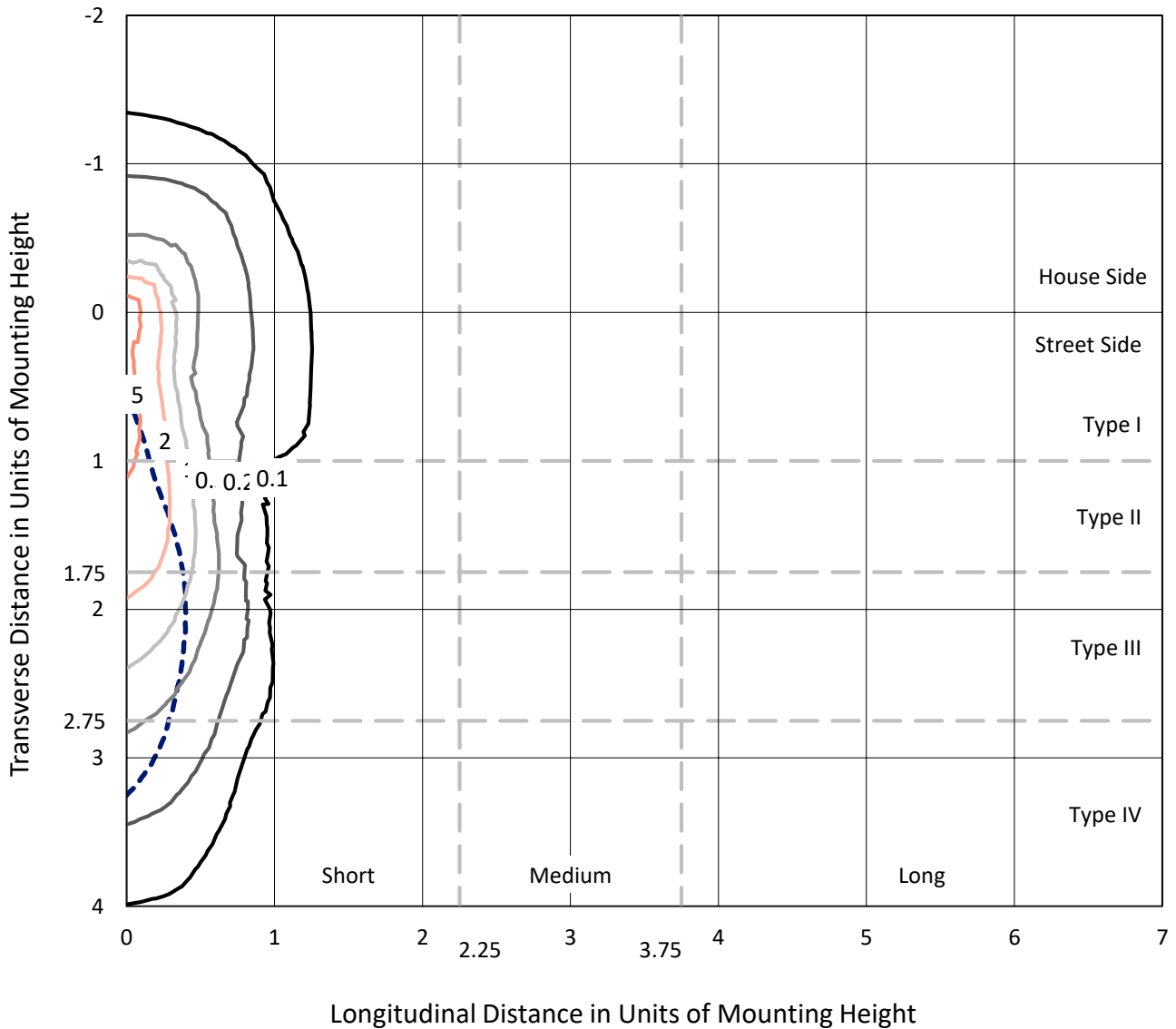


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Iso-Footcandle Lines of Horizontal Illumination

× Max cd
 - - - 1/2 Max cd

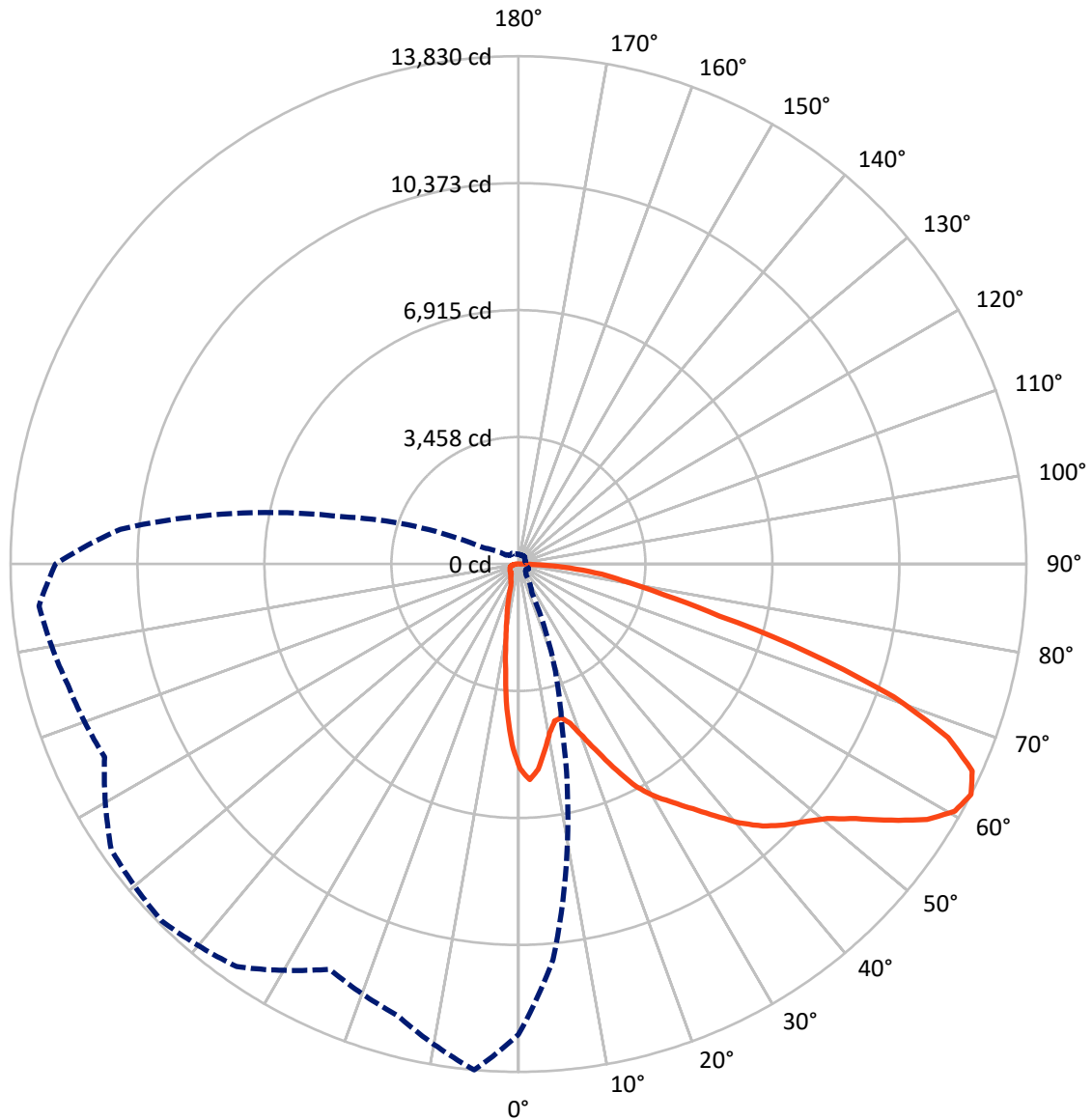


Based on 25 foot mounting height. Maximum calculated value = 8.9 fc
 Type IV - Short - Non-Cutoff

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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	2899.3	0.0	2899.3
	% Fixture	17.7	0.0	17.7
Street Side	Lumens	13466.9	0.0	13466.9
	% Fixture	82.3	0.0	82.3
Total	Lumens	16366.2	0.0	16366.2
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	405.8	2.5
10°-20°	741.1	4.5
20°-30°	1066.0	6.5
30°-40°	1632.6	10.0
40°-50°	2386.9	14.6
50°-60°	3473.0	21.2
60°-70°	4023.9	24.6
70°-80°	2097.6	12.8
80°-90°	539.2	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°	16366.2	100.0
0°-180°	16366.2	100.0



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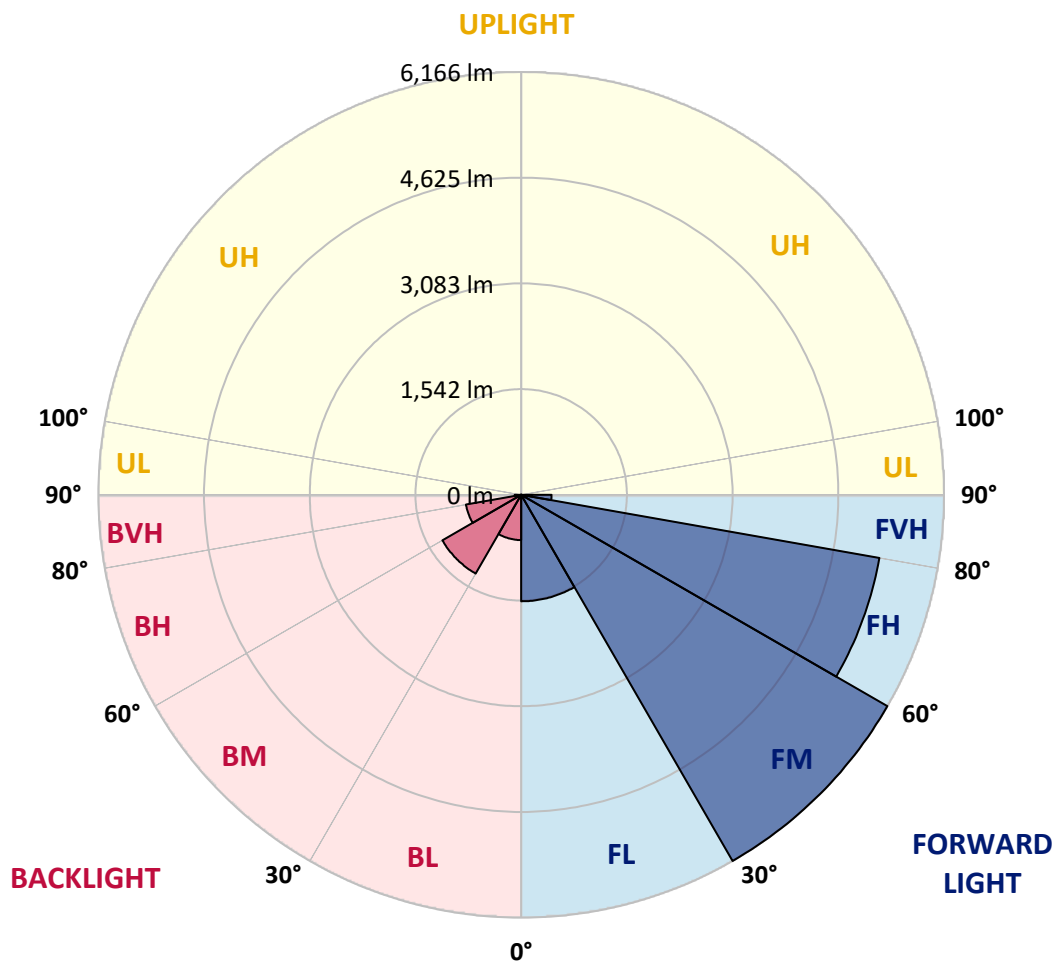
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1553.2	9.5			
FM	(30°-60°)	6166.0	37.7			
FH	(60°-80°)	5304.1	32.4			G3/7500
FVH	(80°-90°)	443.6	2.7			G3/500
BL	(0°-30°)	659.6	4.0	B2/1000		
BM	(30°-60°)	1326.5	8.1	B2/2500		
BH	(60°-80°)	817.5	5.0	B2/1000		G2/1000
BVH	(80°-90°)	95.6	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°	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6
2.5°	5759.9	5679.2	5492.9	5329.2	5125.1	4972.1	4785.7	4687.2	4614.8	4566.1	4527.0
5°	5380.2	5185.6	4829.7	4517.6	4180.5	3937.2	3652.4	3497.1	3400.9	3348.7	3325.0
7.5°	4816.6	4559.1	4098.7	3679.8	3258.5	2954.7	2738.7	2508.6	2386.3	2306.9	2280.7
10°	4324.1	4033.4	3484.0	3012.9	2687.7	2471.8	2286.6	2075.5	1918.7	1782.3	1731.3
12.5°	4038.1	3699.9	3073.4	2647.4	2374.5	2143.1	1947.3	1719.5	1554.5	1412.1	1357.6
15°	3977.6	3600.3	2901.3	2414.8	2080.2	1801.3	1566.3	1318.4	1157.0	1039.5	1001.6
17.5°	4160.3	3695.2	2829.0	2202.4	1799.0	1458.4	1168.8	903.1	769.0	704.8	689.5
20°	4536.5	3904.0	2794.5	2011.3	1526.0	1122.6	808.1	613.5	547.1	528.0	526.8
22.5°	5031.4	4243.4	2832.4	1854.7	1269.7	828.3	592.1	504.3	477.0	466.4	466.4
25°	5590.2	4702.6	2933.4	1734.8	1044.2	644.4	510.2	462.8	440.3	429.5	430.8
27.5°	6273.8	5261.5	3071.0	1624.5	882.8	564.9	477.0	436.7	414.1	403.5	404.7
30°	6788.7	5742.1	3189.7	1523.7	799.7	532.8	459.2	421.3	396.3	380.9	379.7
32.5°	7270.5	6165.7	3285.8	1451.3	752.3	475.9	415.3	386.9	365.5	347.7	344.1
35°	7803.3	6564.5	3330.9	1448.9	721.5	429.5	379.7	345.3	324.0	303.8	300.2
37.5°	8407.3	7052.2	3368.9	1463.1	704.8	399.9	363.1	329.9	312.1	292.0	287.1
40°	9036.2	7529.2	3398.5	1475.0	702.5	379.7	350.1	320.4	302.6	281.2	276.5
42.5°	9576.1	7951.6	3438.9	1470.3	685.9	376.1	341.8	312.1	295.4	274.2	268.2
45°	10008.0	8287.4	3501.8	1469.1	660.9	384.4	339.4	309.7	289.5	267.0	262.3
47.5°	10410.4	8666.0	3634.6	1464.4	633.6	382.1	352.4	307.3	287.1	264.6	261.1
50°	10870.8	9175.1	3861.3	1428.8	595.7	365.5	376.1	304.9	281.2	261.1	257.5
52.5°	11511.6	9920.3	4197.2	1364.6	543.5	347.7	379.7	303.8	271.7	253.9	249.2
55°	12265.1	10718.9	4559.1	1272.0	474.6	316.8	360.7	299.0	262.3	243.3	236.1
57.5°	12847.8	11308.6	4811.8	1139.2	407.0	299.0	321.6	288.4	250.4	231.4	225.5
60°	13011.4	11334.7	4856.9	980.2	372.6	287.1	276.5	314.5	240.9	220.8	214.8
62.5°	12815.6	10816.2	4562.6	868.6	360.7	275.3	251.5	300.2	231.4	211.2	205.3
65°	12235.4	9940.4	3904.0	852.0	372.6	264.6	238.6	239.7	221.9	201.7	195.8
67.5°	10880.3	8651.7	3075.8	862.7	386.9	253.9	229.0	218.3	211.2	193.4	186.3
70°	8848.7	6965.6	2423.1	881.7	399.9	239.7	217.2	204.1	198.1	179.2	175.6
72.5°	6816.0	5574.8	1911.7	868.6	413.0	225.5	200.5	189.9	182.7	164.9	161.4
75°	4840.3	4429.7	1405.0	745.2	378.5	205.3	181.6	172.1	166.1	147.1	146.0
77.5°	3488.7	3317.8	977.8	560.1	299.0	180.3	160.2	151.9	148.3	126.9	126.9
80°	2782.6	2525.2	585.0	365.5	218.3	149.6	134.1	130.5	126.9	105.6	106.8
82.5°	1999.5	1751.5	373.8	227.8	160.2	114.0	104.4	103.2	97.3	78.4	78.4
85°	1025.3	894.7	239.7	153.0	112.7	73.6	68.8	66.5	62.9	48.7	48.7
87.5°	199.4	274.2	132.9	74.8	54.6	26.1	26.1	22.5	26.1	17.8	19.0
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°	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6
2.5°	4601.7	4578.0	4561.4	4553.2	4672.9	4722.8	4779.7	4861.7	4917.4	4893.7	4969.6
5°	3436.5	3453.1	3491.1	3550.5	3717.7	3797.2	3848.2	3915.9	3964.5	3915.9	3996.6
7.5°	2349.5	2374.5	2455.2	2577.3	2779.1	2868.0	2885.8	2887.1	2876.4	2796.8	2851.5
10°	1730.1	1680.3	1698.1	1785.9	1966.2	2045.8	2054.1	2032.7	2029.1	1997.1	2058.8
12.5°	1340.9	1272.0	1231.7	1246.0	1381.3	1446.6	1457.2	1469.1	1517.8	1533.1	1609.1
15°	1000.3	964.7	935.1	922.0	1011.0	1062.0	1068.0	1096.5	1147.4	1161.8	1227.0
17.5°	703.7	713.2	728.5	734.5	798.6	831.9	822.4	822.4	830.6	827.1	863.9
20°	537.6	556.5	586.2	614.7	672.8	691.8	668.1	638.4	619.4	609.9	618.3
22.5°	474.6	487.7	506.7	543.5	592.1	601.6	570.8	547.1	529.3	519.8	520.9
25°	440.3	453.3	468.7	498.4	539.9	544.6	516.2	500.7	486.5	477.0	474.6
27.5°	410.6	418.9	428.4	447.3	490.1	492.4	473.4	464.0	454.5	447.3	445.0
30°	383.3	386.9	390.4	409.4	441.4	445.0	435.5	430.8	427.2	422.5	422.5
32.5°	347.7	352.4	358.3	375.0	405.8	410.6	404.7	401.1	395.2	392.8	389.2
35°	304.9	316.8	329.9	350.1	383.3	385.7	378.5	367.9	353.6	350.1	347.7
37.5°	287.1	289.5	306.2	329.9	364.3	366.6	357.2	339.4	328.7	329.9	332.3
40°	275.3	278.9	288.4	312.1	346.5	350.1	341.8	328.7	318.0	319.2	322.7
42.5°	265.8	270.6	276.5	292.0	326.3	333.5	331.0	319.2	308.5	310.9	315.7
45°	261.1	264.6	264.6	275.3	308.5	319.2	320.4	310.9	302.6	304.9	310.9
47.5°	258.7	258.7	255.1	263.4	296.7	307.3	309.7	304.9	300.2	302.6	308.5
50°	255.1	250.4	246.8	253.9	287.1	296.7	299.0	295.4	297.9	302.6	306.2
52.5°	244.5	239.7	239.7	244.5	277.6	287.1	288.4	286.0	290.7	296.7	302.6
55°	231.4	231.4	232.6	237.3	272.9	280.1	278.9	276.5	281.2	288.4	294.3
57.5°	219.5	218.3	224.2	230.2	267.0	271.7	269.3	269.3	272.9	278.9	284.8
60°	212.4	206.4	211.2	220.8	261.1	265.8	262.3	261.1	267.0	271.7	276.5
62.5°	205.3	199.4	203.0	212.4	252.8	256.4	253.9	253.9	259.8	263.4	268.2
65°	194.6	192.2	194.6	204.1	245.6	246.8	246.8	248.0	252.8	255.1	259.8
67.5°	185.2	185.2	186.3	195.8	239.7	237.3	237.3	243.3	244.5	246.8	251.5
70°	173.3	175.6	175.6	187.5	235.0	226.7	227.8	232.6	235.0	237.3	238.6
72.5°	160.2	161.4	163.8	179.2	227.8	215.9	217.2	220.8	221.9	225.5	226.7
75°	146.0	147.1	150.7	170.8	223.1	205.3	203.0	205.3	207.7	210.0	208.9
77.5°	129.3	131.8	135.2	166.1	207.7	203.0	185.2	187.5	189.9	189.9	188.6
80°	109.1	112.7	118.7	159.0	175.6	195.8	164.9	166.1	167.4	167.4	164.9
82.5°	81.8	89.0	97.3	131.8	137.7	167.4	142.4	144.7	141.2	138.8	137.7
85°	53.4	59.3	71.2	91.3	100.9	131.8	117.4	118.7	111.5	110.4	110.4
87.5°	21.4	22.5	32.0	46.2	60.6	81.8	84.3	86.6	80.7	80.7	83.1
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):

	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°	285°
0°	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6
2.5°	5084.8	5203.4	5339.9	5478.7	5592.6	5739.8	5882.2	6034.1	6111.2	6156.2	6283.3
5°	4122.4	4284.9	4478.4	4695.5	4875.9	5184.4	5516.7	5886.9	6064.9	6240.5	6572.8
7.5°	2948.8	3107.8	3333.3	3614.5	3870.8	4277.8	4715.7	5216.4	5463.3	5748.1	6292.7
10°	2189.3	2357.8	2562.0	2800.4	3053.2	3476.8	3968.1	4530.5	4802.3	5123.9	5743.4
12.5°	1775.2	1972.1	2183.4	2397.0	2614.2	2898.9	3414.0	4039.3	4331.2	4655.1	5275.8
15°	1384.8	1596.0	1823.8	2056.4	2272.4	2590.4	3116.1	3855.4	4188.8	4502.1	5010.0
17.5°	980.2	1179.6	1435.8	1718.3	2031.5	2407.7	3052.1	3936.1	4340.7	4668.2	5008.8
20°	668.1	805.7	1062.0	1396.6	1783.5	2260.5	3075.8	4219.7	4725.2	5084.8	5214.1
22.5°	534.0	599.2	772.5	1113.1	1569.9	2153.7	3173.1	4608.9	5277.0	5714.8	5587.9
25°	485.3	522.1	612.3	879.3	1380.1	2082.5	3363.0	5122.7	5895.2	6339.0	6037.6
27.5°	455.6	487.7	545.8	722.6	1216.3	2036.3	3603.9	5727.9	6591.8	6956.1	6506.3
30°	436.7	468.7	522.1	649.1	1092.9	1967.4	3815.0	6280.8	7148.3	7384.5	6759.0
32.5°	399.9	424.8	468.7	581.4	1000.3	1886.7	3997.8	6775.7	7674.0	7752.3	7062.9
35°	361.9	388.0	431.9	526.8	945.7	1823.8	4093.8	7214.8	8194.9	8120.2	7364.2
37.5°	347.7	369.1	409.4	487.7	916.1	1782.3	4130.7	7646.7	8753.8	8527.1	7574.3
40°	338.2	357.2	392.8	461.6	907.8	1743.2	4122.4	8057.3	9296.1	8948.5	7739.2
42.5°	331.0	347.7	380.9	443.8	885.3	1706.4	4095.1	8412.0	9730.4	9311.5	7897.1
45°	325.1	342.9	376.1	453.3	843.7	1666.1	4078.5	8736.0	10063.9	9617.7	8108.3
47.5°	322.7	342.9	377.4	450.9	798.6	1621.0	4137.8	9095.6	10354.6	9875.2	8389.5
50°	319.2	341.8	403.5	429.5	736.9	1565.2	4338.3	9524.0	10659.6	10164.8	8753.8
52.5°	313.2	340.5	430.8	413.0	657.3	1488.1	4663.4	10129.2	11186.4	10728.4	9292.6
55°	306.2	342.9	411.7	386.9	573.2	1388.3	4988.6	10958.6	12040.7	11637.3	10066.2
57.5°	297.9	339.4	389.2	363.1	503.1	1262.6	5235.5	11638.5	12745.7	12574.8	11016.8
60°	292.0	347.7	350.1	348.8	458.1	1142.7	5259.2	11594.6	12948.6	13183.5	11947.0
62.5°	284.8	354.8	319.2	338.2	435.5	1031.2	4966.1	10876.7	12605.6	13105.2	12705.4
65°	275.3	309.7	302.6	328.7	435.5	971.9	4283.7	9681.7	11657.5	12364.7	13117.1
67.5°	265.8	281.2	290.7	315.7	445.0	916.1	3442.4	8166.4	10162.3	11169.8	12654.3
70°	252.8	265.8	277.6	303.8	440.3	876.9	2709.1	6545.5	8363.4	9516.8	11373.9
72.5°	240.9	250.4	262.3	286.0	440.3	859.1	2176.3	5134.6	6385.3	7357.2	9421.9
75°	223.1	231.4	242.0	268.2	431.9	785.5	1634.0	4114.1	4671.8	5280.6	7434.3
77.5°	205.3	211.2	219.5	245.6	389.2	656.2	1155.8	3186.1	3461.5	3798.4	5795.5
80°	182.7	187.5	193.4	219.5	322.7	509.0	752.3	2491.9	2588.1	2750.6	3812.6
82.5°	156.6	163.8	164.9	188.6	259.8	369.1	447.3	1707.6	1706.4	1944.9	2690.1
85°	128.2	131.8	134.1	148.3	192.2	245.6	294.3	932.7	831.9	1165.2	2336.5
87.5°	96.2	92.6	96.2	99.6	126.9	144.7	157.8	172.1	103.2	211.2	1358.7
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):

	295°	305°	315°	325°	335°	345°	355°	360°
0°	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6	5579.6
2.5°	6350.9	6420.9	6379.3	6329.5	6204.9	6022.2	5882.2	5759.9
5°	6803.0	6932.3	6875.4	6690.2	6367.5	6000.8	5615.2	5380.2
7.5°	6746.1	7002.3	6979.8	6671.3	6208.5	5668.6	5126.3	4816.6
10°	6290.3	6649.9	6711.6	6396.0	5905.9	5301.9	4674.2	4324.1
12.5°	5794.3	6096.9	6222.7	6102.8	5641.3	5027.8	4388.2	4038.1
15°	5379.0	5532.1	5656.7	5733.8	5447.8	4930.5	4338.3	3977.6
17.5°	5071.7	5042.0	5146.5	5331.5	5343.4	5059.8	4563.8	4160.3
20°	4923.4	4690.7	4751.3	5011.1	5314.9	5388.5	5013.6	4536.5
22.5°	4915.1	4551.9	4563.8	4843.9	5396.8	5837.1	5574.8	5031.4
25°	5043.2	4536.5	4547.2	4826.1	5541.6	6289.2	6223.9	5590.2
27.5°	5261.5	4603.0	4595.8	4904.3	5735.0	6666.5	6878.9	6273.8
30°	5497.6	4699.0	4681.2	5030.2	5924.8	6899.1	7344.1	6788.7
32.5°	5791.9	4870.0	4808.3	5214.1	6112.3	7122.2	7741.6	7270.5
35°	6072.0	5120.4	5031.4	5477.5	6312.9	7370.2	8186.6	7803.3
37.5°	6357.9	5494.2	5444.2	5857.2	6596.5	7639.6	8695.7	8407.3
40°	6724.7	6025.7	6002.0	6409.0	6975.1	7933.8	9266.4	9036.2
42.5°	7119.8	6590.6	6570.4	7042.7	7444.9	8229.3	9755.4	9576.1
45°	7522.1	7275.2	7280.0	7719.1	7939.7	8508.2	10139.8	10008.0
47.5°	7996.7	8024.0	8193.7	8420.3	8421.5	8819.1	10480.3	10410.4
50°	8599.5	8928.2	9241.5	9277.1	8908.1	9229.7	10896.9	10870.8
52.5°	9281.8	9971.3	10335.6	10222.9	9382.7	9738.7	11512.7	11511.6
55°	10092.3	11061.8	11404.8	11212.6	9951.2	10402.1	12317.2	12265.1
57.5°	10932.5	12110.8	12387.3	12136.9	10661.9	11174.5	13124.2	12847.8
60°	11840.2	13013.9	13295.1	12918.9	11459.3	11944.7	13658.1	13011.4
62.5°	12434.8	13541.9	13743.7	13382.9	12173.7	12729.1	13830.2	12815.6
65°	12465.6	13190.6	13244.0	13115.9	12477.4	13410.2	13581.0	12235.4
67.5°	11618.4	11661.0	11731.1	11868.7	11828.4	13106.4	12619.8	10880.3
70°	9806.3	9236.7	9467.0	9599.9	9898.9	11657.5	10843.5	8848.7
72.5°	7498.3	6666.5	6927.6	6882.5	7504.3	9561.9	8295.7	6816.0
75°	5396.8	4546.0	4566.1	4568.5	5392.1	7632.4	5656.7	4840.3
77.5°	3667.9	3217.0	3283.5	3241.9	3608.6	5979.5	4072.6	3488.7
80°	2508.6	2496.7	2510.9	2413.7	2406.5	3864.9	3015.2	2782.6
82.5°	1860.6	1719.5	1699.2	1596.0	1844.1	2954.7	2289.1	1999.5
85°	1467.8	951.7	827.1	998.0	1597.2	2718.6	1395.5	1025.3
87.5°	621.7	373.8	226.7	448.6	887.6	1992.4	386.9	199.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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