

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: P196210

Luminaire Tested: **NAV-AF-04-D-UNV-SLL-800**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196210
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-800
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 4000K, 800mA 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: 17809.6 lumens
Efficiency: N/A
Efficacy: 104.1 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

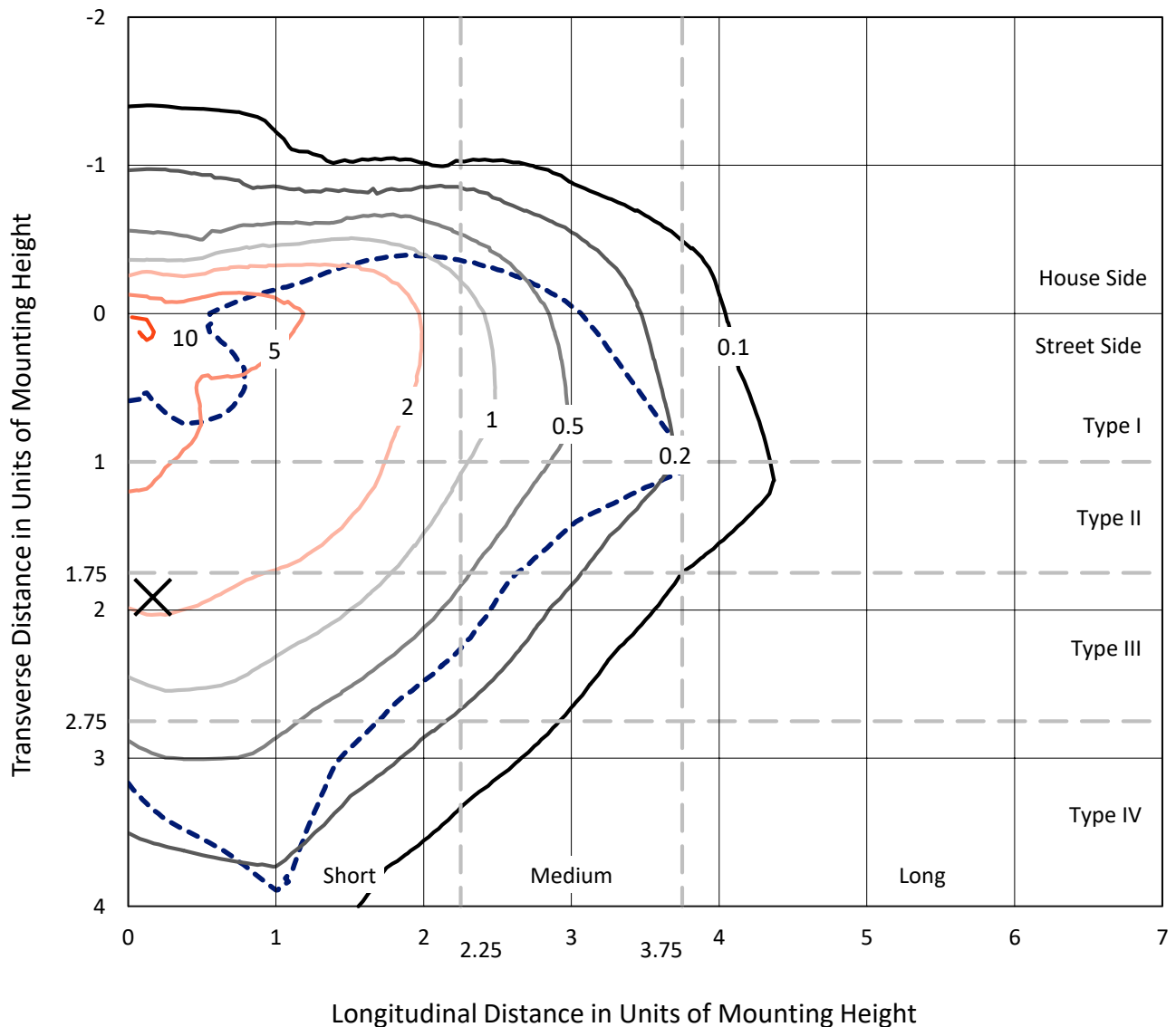
Input Watts (W): 171
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

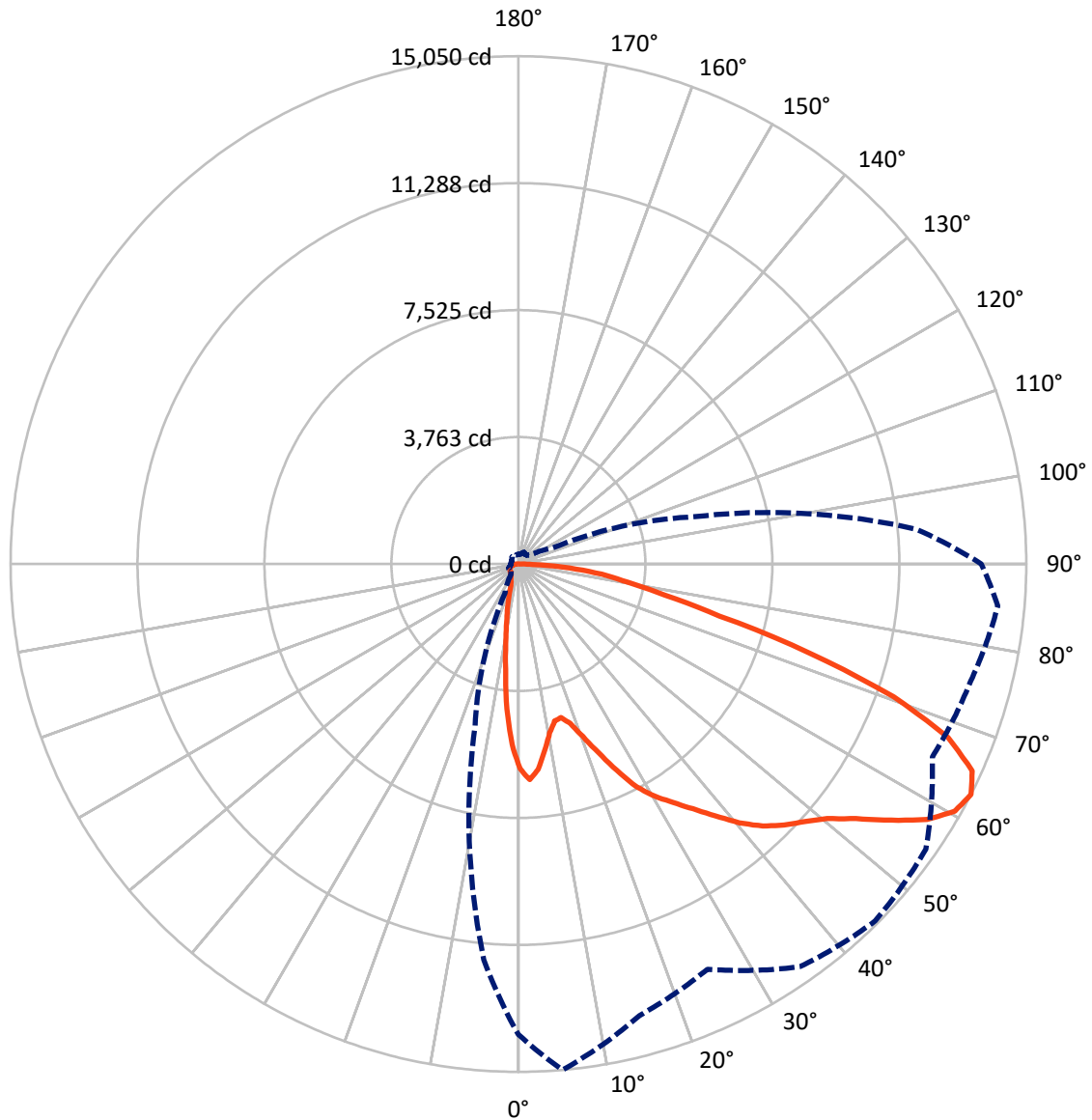
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 11.2 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	3155.0	0.0	3155.0
	% Fixture	17.7	0.0	17.7
Street Side	Lumens	14654.6	0.0	14654.6
	% Fixture	82.3	0.0	82.3
Total	Lumens	17809.6	0.0	17809.6
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	441.6	2.5
10°-20°	806.5	4.5
20°-30°	1160.0	6.5
30°-40°	1776.6	10.0
40°-50°	2597.4	14.6
50°-60°	3779.3	21.2
60°-70°	4378.8	24.6
70°-80°	2282.6	12.8
80°-90°	586.8	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°	17809.6	100.0
0°-180°	17809.6	100.0



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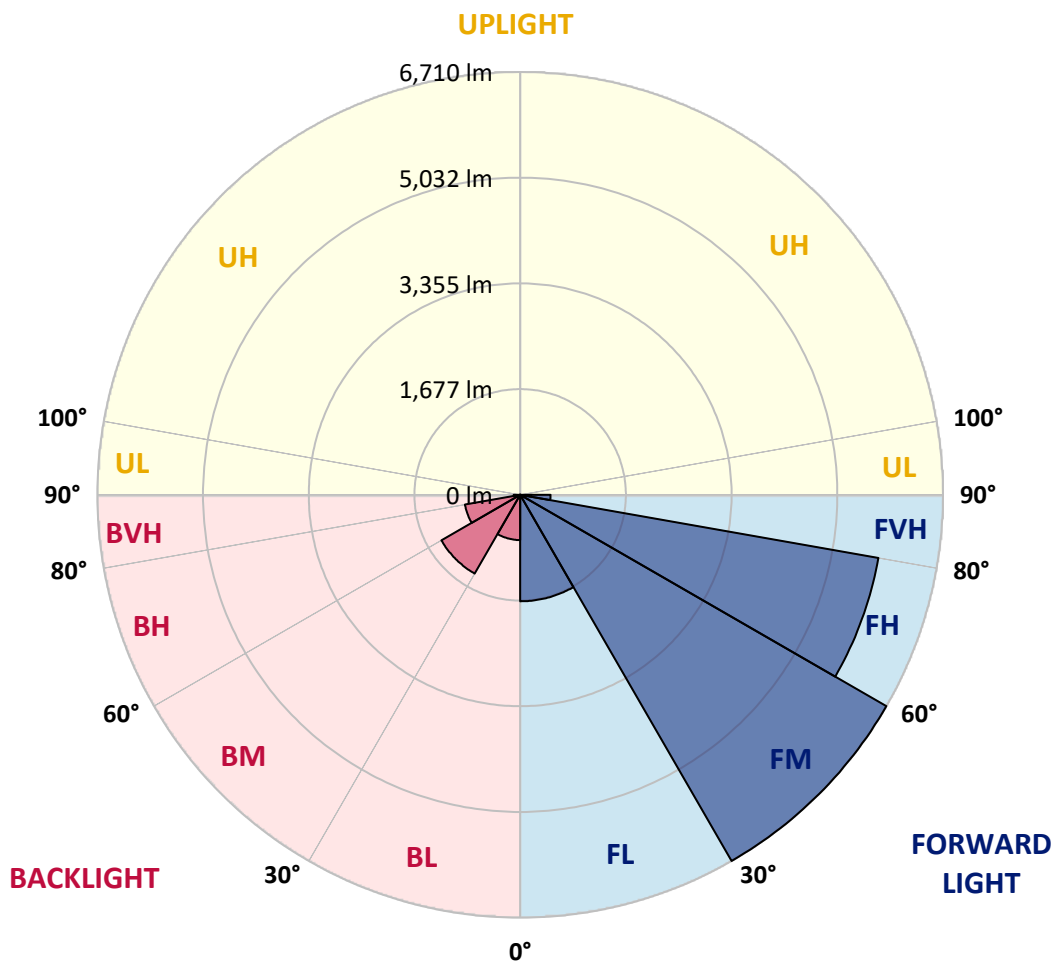
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1690.2	9.5			
FM	(30°-60°)	6709.8	37.7			
FH	(60°-80°)	5771.8	32.4			G3/7500
FVH	(80°-90°)	482.7	2.7			G3/500
BL	(0°-30°)	717.8	4.0	B2/1000		
BM	(30°-60°)	1443.5	8.1	B2/2500		
BH	(60°-80°)	889.6	5.0	B2/1000		G2/1000
BVH	(80°-90°)	104.0	0.6			G2/225
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°	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6
2.5°	6267.9	6400.9	6553.3	6752.2	6887.7	6941.9	6987.2	6911.0	6837.4	6699.2	6650.1
5°	5854.7	6110.4	6530.0	6929.1	7280.2	7481.8	7543.8	7403.0	7152.5	6790.9	6599.8
7.5°	5241.3	5578.4	6168.5	6756.0	7259.6	7595.4	7619.9	7341.0	6847.7	6255.0	5945.1
10°	4705.5	5086.4	5769.4	6426.8	6960.1	7303.6	7236.4	6845.1	6249.8	5575.8	5225.8
12.5°	4394.3	4775.1	5471.2	6138.8	6641.1	6771.5	6634.7	6305.4	5741.1	5065.8	4713.2
15°	4328.4	4720.9	5365.3	5928.3	6239.5	6155.6	6020.0	5853.4	5451.8	4899.1	4558.3
17.5°	4527.3	4966.3	5506.0	5814.7	5801.8	5600.3	5486.7	5518.9	5450.5	5080.0	4723.6
20°	4936.6	5455.7	5863.8	5783.7	5453.1	5170.3	5104.4	5357.6	5673.9	5533.1	5141.9
22.5°	5475.0	6066.5	6351.8	5872.8	5271.1	4966.3	4953.3	5348.5	6080.7	6218.8	5742.3
25°	6083.3	6772.9	6843.8	6030.3	5251.6	4948.2	4936.6	5487.9	6570.1	6898.1	6415.1
27.5°	6827.1	7485.6	7254.5	6240.8	5336.9	5001.2	5008.9	5725.6	7080.1	7569.5	7173.1
30°	7387.4	7991.8	7507.5	6447.5	5473.8	5094.1	5113.5	5982.5	7355.2	8035.7	7778.7
32.5°	7911.7	8424.4	7750.3	6651.4	5673.9	5232.3	5299.5	6302.8	7685.7	8436.0	8350.8
35°	8491.5	8908.6	8020.2	6869.6	5960.6	5475.0	5571.9	6607.5	8013.7	8836.2	8917.7
37.5°	9148.8	9462.6	8313.3	7178.3	6373.8	5924.4	5978.6	6918.7	8242.3	9279.2	9525.8
40°	9833.1	10083.6	8633.6	7590.2	6974.3	6531.3	6557.1	7317.8	8421.7	9737.6	10116.0
42.5°	10420.7	10615.7	8955.1	8101.6	7663.8	7149.9	7171.8	7747.7	8593.5	10132.7	10588.6
45°	10890.7	11034.1	9258.5	8640.0	8399.9	7922.0	7916.9	8185.4	8823.4	10465.9	10951.4
47.5°	11328.5	11404.7	9596.8	9164.3	9163.0	8916.3	8731.7	8702.0	9129.4	10746.1	11267.8
50°	11829.5	11857.9	10043.6	9693.7	10095.3	10056.5	9715.7	9358.0	9525.8	11061.2	11599.6
52.5°	12526.7	12528.1	10597.6	10210.2	11124.5	11247.1	10850.7	10100.4	10112.1	11674.5	12173.0
55°	13346.7	13403.6	11319.5	10828.8	12201.3	12410.5	12037.4	10982.4	10954.0	12663.6	13102.7
57.5°	13980.8	14281.6	12160.0	11602.2	13207.3	13479.7	13178.9	11896.6	11988.4	13683.8	13869.7
60°	14159.0	14862.8	12998.1	12470.0	14058.2	14467.6	14161.5	12884.5	13000.7	14346.2	14090.5
62.5°	13945.9	15050.0	13851.7	13247.3	14563.1	14955.7	14736.2	13531.4	13825.8	14261.0	13717.4
65°	13314.5	14778.8	14592.8	13577.9	14272.6	14412.0	14353.9	13564.9	14273.9	13455.2	12685.6
67.5°	11839.8	13732.8	14262.3	12871.6	12915.5	12765.7	12689.5	12643.0	13770.4	12154.9	11058.6
70°	9629.1	11799.8	12685.6	10772.0	10446.5	10301.9	10051.4	10671.2	12377.0	10356.1	9101.0
72.5°	7417.2	9027.4	10405.3	8166.1	7489.4	7538.5	7254.5	8159.7	10252.8	8006.0	6948.4
75°	5267.2	6155.6	8305.5	5867.6	4971.4	4968.9	4946.9	5872.8	8089.9	5746.2	5083.8
77.5°	3796.4	4431.7	6506.8	3926.8	3527.9	3573.0	3500.6	3991.3	6306.7	4133.4	3766.7
80°	3028.0	3281.1	4205.8	2618.8	2626.5	2732.4	2716.9	2729.7	4148.9	2993.3	2816.3
82.5°	2175.8	2490.9	3215.3	2006.6	1736.8	1849.1	1871.1	2024.7	2927.4	2116.4	1856.9
85°	1115.6	1518.6	2958.4	1738.1	1086.0	900.0	1035.6	1597.3	2542.5	1268.0	905.2
87.5°	217.0	420.9	2168.0	965.9	488.2	246.6	406.7	676.7	1478.6	229.9	112.3
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):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°	185°
0°	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6
2.5°	6566.2	6400.9	6245.9	6085.8	5961.9	5810.8	5662.3	5533.1	5407.9	5325.3	5351.1
5°	6406.1	6003.2	5641.7	5305.9	5109.6	4873.3	4662.8	4485.9	4349.1	4261.2	4314.2
7.5°	5676.5	5131.5	4655.1	4212.2	3933.2	3627.2	3381.9	3208.9	3102.9	3043.6	3130.1
10°	4930.1	4318.1	3783.5	3322.4	3047.5	2787.8	2565.8	2382.5	2240.4	2173.3	2208.1
12.5°	4395.5	3715.1	3154.6	2844.7	2608.4	2376.0	2146.2	1931.7	1751.0	1668.3	1651.6
15°	4195.4	3390.9	2818.8	2472.8	2237.8	1984.7	1736.8	1506.9	1335.2	1264.2	1248.7
17.5°	4283.2	3321.2	2620.0	2210.7	1869.7	1562.5	1283.5	1066.6	940.1	900.0	903.9
20°	4591.8	3347.0	2459.9	1940.8	1519.8	1155.7	876.8	727.0	672.8	663.7	674.0
22.5°	5015.3	3452.9	2343.7	1708.3	1211.3	840.7	652.1	581.0	566.9	565.6	575.9
25°	5574.5	3659.5	2266.2	1501.8	956.9	666.4	568.1	528.1	516.5	519.1	529.5
27.5°	6233.0	3921.7	2215.8	1323.6	786.4	594.0	530.7	495.8	484.3	486.8	494.6
30°	6834.7	4151.5	2140.9	1189.3	706.3	568.1	510.0	475.2	459.7	459.7	464.8
32.5°	7373.2	4350.3	2053.2	1088.5	632.7	510.0	462.3	435.2	423.5	427.4	430.0
35°	7851.0	4455.0	1984.7	1029.2	573.4	470.0	422.3	393.8	378.4	380.9	384.8
37.5°	8321.1	4494.9	1939.5	996.9	530.7	445.5	401.6	378.4	361.5	359.0	357.7
40°	8767.8	4485.9	1896.9	987.9	502.3	427.4	388.7	368.1	351.3	347.4	346.1
42.5°	9154.0	4456.3	1856.9	963.3	482.9	414.5	378.4	360.3	343.5	338.3	335.7
45°	9506.5	4438.2	1813.0	918.1	493.3	409.4	373.2	353.8	338.3	331.8	329.3
47.5°	9897.8	4502.7	1763.9	869.0	490.7	410.6	373.2	351.3	335.7	329.3	326.7
50°	10363.9	4720.9	1703.2	801.9	467.5	439.1	371.8	347.4	333.2	329.3	324.1
52.5°	11022.4	5074.8	1619.2	715.3	449.4	468.7	370.6	340.9	329.3	322.8	316.4
55°	11925.0	5428.6	1510.8	623.7	420.9	448.1	373.2	333.2	320.3	313.7	306.1
57.5°	12664.9	5697.1	1373.9	547.5	395.2	423.5	369.3	324.1	310.0	303.4	297.0
60°	12617.2	5723.0	1243.5	498.5	379.6	380.9	378.4	317.6	300.8	295.7	290.5
62.5°	11836.0	5404.0	1122.2	473.9	368.1	347.4	386.1	310.0	291.8	286.6	282.7
65°	10535.6	4661.6	1057.5	473.9	357.7	329.3	337.1	299.6	282.7	277.6	275.1
67.5°	8886.7	3746.0	996.9	484.3	343.5	316.4	306.1	289.3	273.7	268.6	266.0
70°	7122.7	2948.0	954.3	479.0	330.6	302.2	289.3	275.1	259.5	258.3	255.6
72.5°	5587.4	2368.2	934.9	479.0	311.2	285.4	272.4	262.2	246.6	245.3	241.5
75°	4476.9	1778.1	854.9	470.0	291.8	263.4	251.9	242.7	227.3	228.5	226.0
77.5°	3467.1	1257.7	714.1	423.5	267.3	238.9	229.9	223.4	205.3	206.6	206.6
80°	2711.7	818.7	553.9	351.3	238.9	210.5	204.0	198.9	179.5	182.1	182.1
82.5°	1858.2	486.8	401.6	282.7	205.3	179.5	178.2	170.4	149.8	151.1	153.6
85°	1015.0	320.3	267.3	209.2	161.4	145.9	143.3	139.4	120.1	120.1	121.4
87.5°	187.2	171.8	157.5	138.2	108.4	104.5	100.8	104.5	90.4	87.8	87.8
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°	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6
2.5°	5290.4	5201.3	5139.3	5085.1	4954.7	4963.7	4981.8	5007.7	4926.2	4968.9	5021.9
5°	4261.2	4187.7	4132.1	4045.6	3863.6	3798.9	3757.6	3739.6	3618.2	3644.1	3700.8
7.5°	3141.7	3140.5	3121.0	3024.1	2804.7	2671.6	2583.9	2556.8	2481.9	2510.2	2596.8
10°	2211.9	2235.2	2226.1	2139.7	1943.4	1847.9	1828.4	1882.7	1884.0	1939.5	2088.0
12.5°	1598.6	1585.7	1574.1	1503.0	1355.8	1340.4	1384.3	1459.1	1477.2	1536.7	1691.6
15°	1193.2	1162.2	1155.7	1100.2	1003.3	1017.5	1049.9	1088.5	1089.9	1131.2	1259.0
17.5°	894.9	894.9	905.2	869.0	799.3	792.9	776.1	765.8	750.2	767.0	836.8
20°	694.7	727.0	752.8	732.1	668.9	637.9	605.6	584.9	573.4	574.6	595.3
22.5°	595.3	621.1	654.7	644.4	591.4	551.4	530.7	516.5	507.5	507.5	519.1
25°	544.9	561.7	592.7	587.6	542.4	510.0	493.3	479.0	468.7	467.5	479.0
27.5°	504.9	515.3	535.9	533.3	486.8	466.2	455.8	446.8	440.4	439.1	450.6
30°	468.7	473.9	484.3	480.4	445.5	424.8	420.9	417.1	413.2	414.5	431.3
32.5°	436.5	440.4	446.8	441.6	408.1	389.9	383.5	378.4	374.5	378.4	397.7
35°	400.3	411.9	419.7	417.1	380.9	359.0	344.7	331.8	326.7	330.6	352.5
37.5°	369.3	388.7	399.1	396.4	359.0	333.2	315.1	312.5	312.5	317.6	339.6
40°	357.7	371.8	380.9	377.1	339.6	313.7	303.4	299.6	300.8	306.1	329.3
42.5°	347.4	360.3	362.8	355.1	317.6	300.8	294.4	289.3	291.8	298.3	321.5
45°	338.3	348.6	347.4	335.7	299.6	288.0	288.0	284.1	285.4	290.5	315.1
47.5°	331.8	337.1	334.4	322.8	286.6	277.6	281.5	281.5	284.1	288.0	312.5
50°	321.5	325.4	322.8	312.5	276.3	268.6	272.4	277.6	280.2	284.1	306.1
52.5°	311.2	313.7	312.5	302.2	266.0	260.9	260.9	266.0	271.2	276.3	295.7
55°	300.8	303.4	304.7	297.0	258.3	253.1	251.9	251.9	257.0	264.7	285.4
57.5°	293.1	293.1	295.7	290.5	250.5	244.1	237.6	238.9	245.3	251.9	272.4
60°	284.1	285.4	289.3	284.1	240.2	229.9	224.6	231.2	233.7	240.2	262.2
62.5°	276.3	276.3	279.0	275.1	231.2	220.9	217.0	223.4	223.4	229.9	251.9
65°	269.9	268.6	268.6	267.3	222.1	211.8	209.2	211.8	213.1	219.5	241.5
67.5°	264.7	258.3	258.3	260.9	213.1	202.7	201.4	201.4	202.7	210.5	229.9
70°	253.1	248.0	246.6	255.6	204.0	191.1	191.1	188.5	191.1	195.0	215.6
72.5°	240.2	236.3	235.0	248.0	195.0	178.2	175.6	174.3	175.6	179.5	198.9
75°	223.4	220.9	223.4	242.7	186.0	164.0	160.1	158.9	158.9	160.1	180.8
77.5°	204.0	201.4	220.9	226.0	180.8	147.2	143.3	140.8	138.2	138.2	161.4
80°	180.8	179.5	213.1	191.1	173.1	129.1	122.7	118.8	116.2	114.9	138.2
82.5°	157.5	155.0	182.1	149.8	143.3	105.9	96.9	89.1	85.2	85.2	105.9
85°	129.1	127.9	143.3	109.8	99.4	77.4	64.5	58.1	53.0	53.0	68.4
87.5°	94.2	91.7	89.1	65.9	50.3	34.9	24.6	23.2	20.7	19.3	28.4
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):

	295°	305°	315°	325°	335°	345°	355°	360°
0°	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6	6071.6
2.5°	5100.6	5207.7	5410.5	5577.0	5799.2	5977.4	6180.2	6267.9
5°	3805.4	3974.6	4284.5	4549.2	4915.9	5255.5	5642.9	5854.7
7.5°	2729.7	2980.3	3215.3	3545.9	4004.2	4460.1	4961.1	5241.3
10°	2258.5	2488.3	2689.7	2924.7	3278.6	3791.3	4389.1	4705.5
12.5°	1871.1	2119.0	2332.0	2583.9	2880.8	3344.4	4026.2	4394.3
15°	1434.6	1704.5	1960.2	2263.6	2627.8	3157.2	3917.8	4328.4
17.5°	982.6	1271.9	1587.0	1957.6	2396.7	3078.5	4021.1	4527.3
20°	667.6	879.3	1221.6	1660.6	2188.7	3041.0	4248.3	4936.6
22.5°	548.8	644.4	901.3	1381.7	2018.3	3082.4	4617.6	5475.0
25°	503.6	555.3	701.1	1136.3	1887.9	3192.0	5117.4	6083.3
27.5°	475.2	519.1	614.7	960.8	1767.8	3341.9	5725.6	6827.1
30°	458.4	499.7	579.8	870.3	1658.0	3471.0	6248.6	7387.4
32.5°	420.9	451.9	517.8	818.7	1579.2	3575.6	6709.5	7911.7
35°	375.7	413.2	467.5	785.1	1576.7	3624.6	7143.4	8491.5
37.5°	359.0	395.2	435.2	767.0	1592.1	3665.9	7674.2	9148.8
40°	348.6	380.9	413.2	764.5	1605.1	3698.3	8193.2	9833.1
42.5°	339.6	371.8	409.4	746.3	1599.9	3742.2	8652.9	10420.7
45°	337.1	369.3	418.4	719.2	1598.6	3810.6	9018.3	10890.7
47.5°	334.4	383.5	415.8	689.6	1593.5	3955.2	9430.3	11328.5
50°	331.8	409.4	397.7	648.2	1554.7	4201.9	9984.2	11829.5
52.5°	330.6	413.2	378.4	591.4	1485.0	4567.3	10795.2	12526.7
55°	325.4	392.5	344.7	516.5	1384.3	4961.1	11664.2	13346.7
57.5°	313.7	350.0	325.4	442.9	1239.6	5236.2	12306.0	13980.8
60°	342.2	300.8	312.5	405.5	1066.6	5285.3	12334.4	14159.0
62.5°	326.7	273.7	299.6	392.5	945.2	4965.0	11770.1	13945.9
65°	260.9	259.5	288.0	405.5	927.1	4248.3	10817.1	13314.5
67.5°	237.6	249.2	276.3	420.9	938.8	3347.0	9414.8	11839.8
70°	222.1	236.3	260.9	435.2	959.4	2636.9	7579.9	9629.1
72.5°	206.6	218.2	245.3	449.4	945.2	2080.3	6066.5	7417.2
75°	187.2	197.5	223.4	411.9	810.9	1528.9	4820.3	5267.2
77.5°	165.3	174.3	196.3	325.4	609.5	1064.0	3610.4	3796.4
80°	142.1	145.9	162.8	237.6	397.7	636.6	2747.9	3028.0
82.5°	112.3	113.6	124.0	174.3	248.0	406.7	1906.0	2175.8
85°	72.3	74.9	80.1	122.7	166.5	260.9	973.6	1115.6
87.5°	24.6	28.4	28.4	59.4	81.3	144.6	298.3	217.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)