

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: P195808

Luminaire Tested: **NAV-AF-04-D-UNV-T2R-7050**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P195808
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24459)
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-T2R-7050
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 5000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II
ROADWAY OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 25566 lumens
Efficiency: N/A
Efficacy: 113.6 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short - Semi-Cutoff
BUG Rating: B3 - U0 - G3

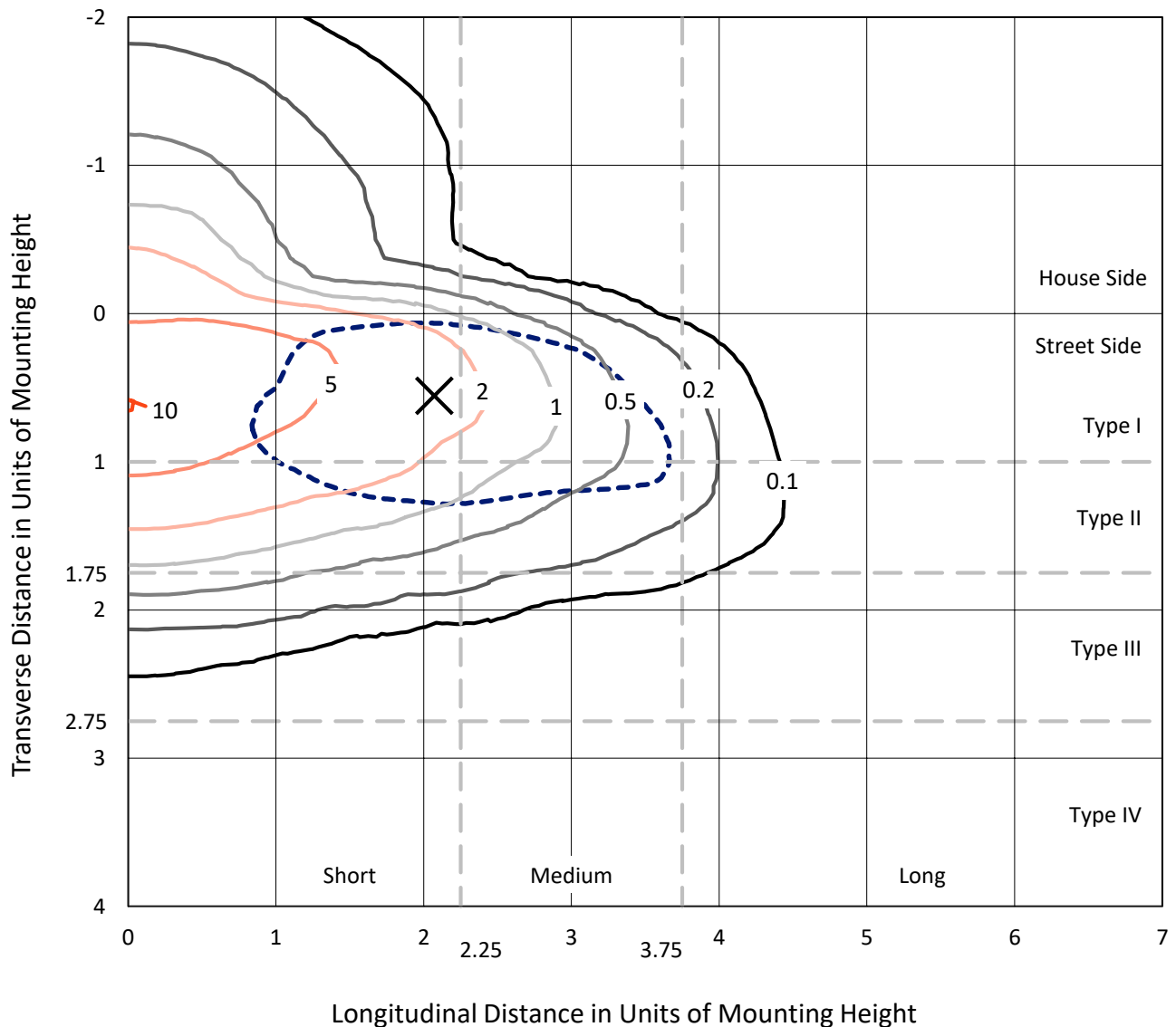
Input Watts (W): 225
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

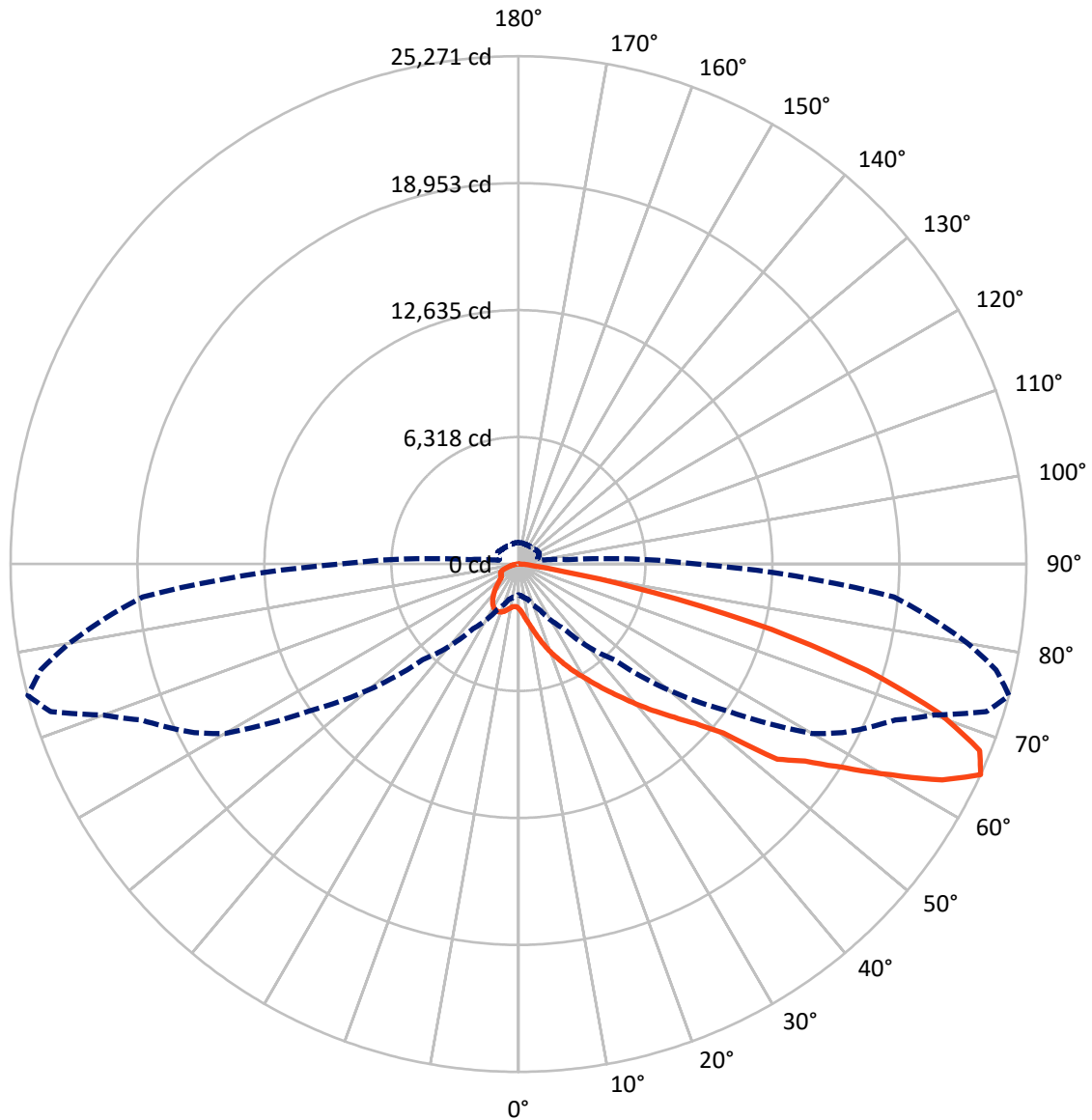
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 10.2 fc
 Type II - Short - Semi-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 75-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3841.7	0.0	3841.7
	% Fixture	15.0	0.0	15.0
Street Side	Lumens	21724.3	0.0	21724.3
	% Fixture	85.0	0.0	85.0
Total	Lumens	25566.0	0.0	25566.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.5	1.0
10°-20°	998.9	3.9
20°-30°	2015.8	7.9
30°-40°	3423.3	13.4
40°-50°	4774.7	18.7
50°-60°	5852.0	22.9
60°-70°	5506.0	21.5
70°-80°	2414.3	9.4
80°-90°	319.5	1.2
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°	25566.0	100.0
0°-180°	25566.0	100.0



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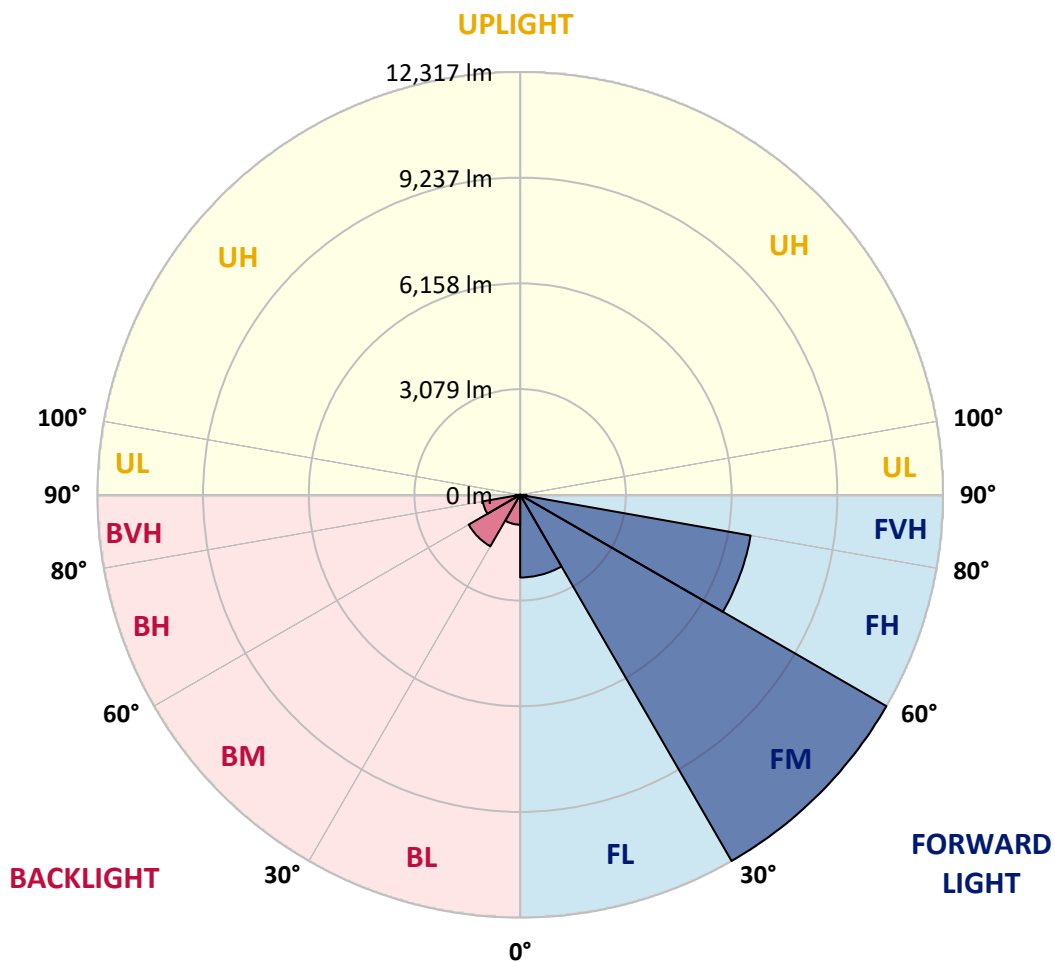
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	2406.5	9.4			
FM (30°-60°)	12316.5	48.2			
FH (60°-80°)	6816.1	26.7			G3/7500
FVH (80°-90°)	185.2	0.7			G2/225
BL (0°-30°)	869.7	3.4	B2/1000		
BM (30°-60°)	1733.6	6.8	B2/2500		
BH (60°-80°)	1104.2	4.3	B3/2500		G3/2500
BVH (80°-90°)	134.3	0.5			G2/225
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3

Type II Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	57.5°	60°	62.5°	65°
0°	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1
2.5°	2789.3	2756.7	2760.0	2714.4	2647.8	2574.6	2514.4	2481.9	2454.2	2446.1	2400.5
5°	3648.0	3607.3	3592.7	3488.6	3332.5	3147.1	2963.3	2891.7	2833.2	2797.4	2709.6
7.5°	4350.6	4329.4	4309.9	4214.0	4059.5	3822.0	3526.0	3420.3	3322.7	3215.4	3109.6
10°	4828.7	4820.6	4812.5	4745.8	4617.3	4410.8	4092.0	3976.5	3854.5	3717.9	3579.7
12.5°	5189.8	5189.8	5196.3	5141.0	5062.9	4903.6	4614.1	4506.7	4383.1	4240.0	4082.2
15°	5432.1	5438.6	5472.8	5489.1	5448.4	5345.9	5092.2	4997.9	4880.8	4739.3	4583.2
17.5°	5593.1	5606.2	5656.6	5710.2	5762.3	5726.5	5537.8	5450.0	5344.3	5214.2	5067.8
20°	5967.2	5950.9	5952.6	5936.3	6012.7	6040.4	5936.3	5863.1	5778.5	5659.8	5526.5
22.5°	6752.8	6721.9	6642.2	6438.9	6346.2	6336.4	6274.6	6235.6	6170.5	6095.7	5962.3
25°	7777.4	7741.6	7583.8	7248.8	6972.3	6717.0	6603.1	6578.7	6536.4	6486.0	6390.1
27.5°	8836.2	8797.1	8593.8	8171.0	7809.9	7294.3	6939.8	6907.3	6868.2	6847.1	6801.5
30°	9768.1	9725.8	9525.7	9096.4	8660.5	8045.7	7393.5	7279.7	7213.0	7219.5	7193.5
32.5°	10586.1	10548.7	10324.3	9886.8	9444.4	8847.5	7982.3	7805.0	7655.4	7600.1	7619.6
35°	11272.5	11238.3	10992.7	10552.0	10106.4	9610.3	8740.2	8473.5	8229.5	8076.6	8058.7
37.5°	11675.8	11656.3	11483.9	11109.8	10667.5	10303.2	9589.2	9293.2	8933.7	8710.9	8613.3
40°	11653.1	11674.2	11644.9	11475.8	11132.6	10867.5	10473.9	10181.2	9829.9	9498.1	9299.7
42.5°	11321.3	11350.5	11482.3	11570.1	11477.4	11316.4	11246.5	11028.5	10713.0	10361.7	10086.8
45°	10865.9	10891.9	11062.7	11379.8	11644.9	11690.5	11923.0	11814.1	11547.3	11248.1	10945.6
47.5°	10168.2	10218.6	10417.0	10921.2	11552.2	11991.3	12490.6	12541.1	12386.6	12139.3	11856.4
50°	9158.2	9224.9	9503.0	10220.2	11200.9	12300.4	13334.7	13526.7	13464.8	13214.4	12928.1
52.5°	8123.8	8190.5	8561.3	9324.1	10634.9	12427.2	14165.8	14657.0	15011.5	15270.1	15320.6
55°	7047.1	7121.9	7528.5	8406.8	9880.3	12266.2	14759.5	15317.3	15676.7	15946.7	16055.7
57.5°	5832.2	5916.8	6310.4	7198.4	8813.4	11618.9	15419.8	16210.2	16745.3	17161.6	17395.8
60°	4438.4	4544.1	4952.3	5846.9	7411.4	10379.6	15714.1	16883.5	17734.1	18358.6	18729.5
62.5°	2813.6	2921.0	3345.5	4274.1	5816.0	8686.5	14881.4	16587.5	18038.2	18962.0	19641.9
65°	1535.3	1582.5	1818.3	2517.6	3921.2	6739.7	12770.4	14782.2	16872.1	18181.4	19225.5
67.5°	1151.5	1158.0	1182.4	1353.2	2088.3	4550.6	9984.4	11827.1	14147.9	15832.9	17080.3
70°	1008.4	1008.4	1011.6	1013.2	1133.6	2465.6	6764.1	8460.5	10587.8	12292.2	13842.2
72.5°	904.3	894.5	891.3	871.7	888.0	1263.7	3682.1	5206.1	7000.0	8912.6	10358.5
75°	780.7	779.0	779.0	759.5	769.3	889.6	1597.1	2498.1	3888.7	5669.6	7092.7
77.5°	675.0	663.6	665.2	653.8	684.7	681.5	757.9	1029.5	1693.1	2977.9	4158.7
80°	556.2	548.1	553.0	546.5	595.3	504.2	510.7	629.4	840.8	1306.0	1841.1
82.5°	411.5	414.7	445.6	442.4	500.9	339.9	374.1	470.0	566.0	650.6	707.5
85°	240.7	245.6	320.4	336.7	367.6	178.9	229.3	279.7	315.5	349.7	364.3
87.5°	26.0	34.2	178.9	183.8	164.3	53.7	92.7	117.1	125.2	133.4	117.1
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):

	67.5°	70°	72.5°	75°	77.5°	80°	85°	90°	95°	100°	102.5°
0°	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1
2.5°	2385.9	2364.8	2342.0	2329.0	2306.2	2286.7	2250.9	2221.6	2189.1	2166.3	2156.6
5°	2665.6	2615.2	2561.6	2522.5	2473.7	2431.4	2350.1	2252.5	2221.6	2156.6	2140.3
7.5°	3030.0	2938.9	2847.8	2773.0	2688.4	2618.5	2481.9	2306.2	2283.4	2179.4	2156.6
10°	3457.7	3324.3	3189.3	3073.9	2950.3	2842.9	2641.3	2394.0	2369.6	2236.3	2213.5
12.5°	3935.9	3773.2	3599.2	3426.8	3280.4	3129.2	2854.3	2530.7	2491.6	2333.9	2303.0
15°	4428.6	4253.0	4051.3	3843.1	3662.6	3462.6	3116.2	2709.6	2638.0	2452.6	2410.3
17.5°	4914.9	4724.7	4513.2	4280.6	4069.2	3830.1	3399.1	2909.6	2786.0	2569.7	2516.0
20°	5385.0	5191.4	4968.6	4740.9	4477.4	4204.2	3688.6	3106.4	2917.7	2667.3	2597.3
22.5°	5812.7	5646.8	5424.0	5162.1	4895.4	4588.0	3983.0	3303.2	3033.2	2742.1	2652.6
25°	6263.2	6112.0	5890.8	5638.7	5328.0	4986.5	4287.2	3490.2	3125.9	2782.7	2672.2
27.5°	6718.6	6588.5	6380.3	6115.2	5781.8	5402.9	4596.2	3662.6	3200.7	2795.8	2662.4
30°	7204.9	7104.1	6912.1	6616.1	6279.5	5859.9	4932.8	3831.8	3247.9	2777.9	2618.5
32.5°	7665.2	7661.9	7491.1	7183.7	6821.1	6359.2	5287.4	4002.5	3272.3	2727.4	2542.0
35°	8143.3	8210.0	8081.5	7788.8	7406.6	6894.2	5679.3	4184.7	3273.9	2638.0	2442.8
37.5°	8686.5	8805.3	8748.3	8470.2	8068.5	7504.1	6139.6	4389.6	3264.2	2514.4	2298.1
40°	9304.6	9467.2	9465.6	9231.4	8802.0	8187.2	6674.7	4618.9	3241.4	2359.9	2127.3
42.5°	10012.0	10205.6	10259.2	10028.3	9594.1	8933.7	7287.8	4871.0	3205.6	2207.0	1946.8
45°	10822.0	10992.7	11093.6	10878.9	10443.0	9746.9	7992.1	5157.3	3161.7	2010.2	1740.2
47.5°	11688.8	11887.3	12038.5	11854.7	11389.6	10674.0	8826.4	5526.5	3145.4	1785.8	1517.4
50°	12763.9	12968.8	13295.7	13212.8	12957.4	12381.7	10591.0	6398.2	3151.9	1572.7	1330.4
52.5°	15431.1	15901.2	16314.3	16130.5	15523.9	14536.6	12025.5	6882.9	3015.3	1398.7	1200.3
55°	16236.2	16769.7	17379.6	17303.1	16720.9	15725.5	13159.1	7287.8	2883.6	1271.8	1115.7
57.5°	17644.7	18274.1	19126.3	19110.0	18396.1	17275.5	14618.0	7772.5	2826.7	1198.6	1073.4
60°	19136.1	19937.9	21115.4	21299.1	20523.4	19357.2	16341.9	8367.8	2834.8	1158.0	1049.0
62.5°	20225.7	21401.6	23114.2	23663.9	22749.9	21465.0	18130.9	8963.0	2786.0	1110.8	1019.7
65°	20292.4	21985.5	24415.3	25270.8	24345.4	22694.6	18762.0	8845.9	2493.2	1047.4	972.6
67.5°	18666.0	20871.4	23823.3	24761.7	23815.2	21936.7	17656.0	7733.5	2026.5	936.8	891.3
70°	15546.6	18106.6	21170.7	22216.4	21434.1	19532.9	15366.1	6177.0	1514.2	790.4	769.3
72.5°	12014.1	14401.6	17184.4	18152.1	17553.6	15881.7	12119.8	4501.8	1081.5	640.8	624.5
75°	8588.9	10621.9	12641.9	13011.1	12420.7	10885.4	7863.6	2812.0	757.9	525.3	502.6
77.5°	5318.3	6640.5	7365.9	6891.0	6138.0	5102.0	3200.7	1388.9	504.2	427.7	405.0
80°	2359.9	2769.7	2586.0	2304.6	1819.9	1496.3	977.5	616.4	325.3	330.2	317.1
82.5°	793.7	839.2	816.4	811.6	731.9	640.8	414.7	266.7	182.2	211.4	206.6
85°	387.1	405.0	406.6	421.2	365.9	284.6	112.2	105.7	78.1	113.8	118.7
87.5°	117.1	118.7	107.3	117.1	94.3	65.1	21.1	29.3	14.6	27.6	27.6
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):

	105°	107.5°	110°	112.5°	115°	117.5°	120°	122.5°	125°	127.5°	130°
0°	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1
2.5°	2138.7	2132.2	2120.8	2107.8	2104.5	2088.3	2083.4	2075.3	2070.4	2062.3	2055.8
5°	2119.2	2107.8	2094.8	2080.1	2080.1	2057.4	2047.6	2037.9	2037.9	2023.2	2016.7
7.5°	2138.7	2124.1	2109.4	2096.4	2101.3	2075.3	2065.5	2055.8	2054.1	2039.5	2033.0
10°	2194.0	2179.4	2161.5	2148.5	2143.6	2122.4	2111.0	2096.4	2086.7	2076.9	2067.1
12.5°	2278.6	2259.0	2236.3	2208.6	2197.2	2179.4	2161.5	2142.0	2119.2	2109.4	2094.8
15°	2379.4	2346.9	2316.0	2281.8	2250.9	2233.0	2208.6	2177.7	2146.8	2133.8	2114.3
17.5°	2462.3	2428.2	2384.3	2343.6	2288.3	2273.7	2239.5	2202.1	2151.7	2146.8	2117.6
20°	2532.3	2480.2	2426.6	2377.8	2293.2	2285.1	2242.8	2198.9	2127.3	2127.3	2091.5
22.5°	2571.3	2499.8	2436.3	2371.3	2265.6	2259.0	2210.3	2158.2	2070.4	2073.6	2029.7
25°	2577.8	2491.6	2411.9	2333.9	2211.9	2200.5	2138.7	2081.8	1985.8	1979.3	1933.8
27.5°	2551.8	2451.0	2358.3	2263.9	2132.2	2107.8	2039.5	1971.2	1876.8	1860.6	1811.8
30°	2491.6	2372.9	2268.8	2159.8	2021.6	1982.6	1911.0	1841.1	1745.1	1724.0	1678.4
32.5°	2395.7	2260.7	2145.2	2036.2	1883.4	1834.6	1763.0	1693.1	1600.4	1584.1	1541.8
35°	2268.8	2117.6	1995.6	1880.1	1727.2	1676.8	1608.5	1546.7	1462.1	1455.6	1426.3
37.5°	2109.4	1951.7	1821.6	1711.0	1566.2	1540.2	1470.3	1424.7	1354.8	1361.3	1346.6
40°	1928.9	1767.9	1644.3	1546.7	1421.5	1398.7	1356.4	1322.3	1262.1	1280.0	1281.6
42.5°	1746.7	1585.7	1473.5	1385.7	1278.3	1263.7	1234.4	1214.9	1169.4	1205.2	1219.8
45°	1540.2	1390.6	1294.6	1227.9	1148.2	1148.2	1133.6	1132.0	1101.1	1151.5	1166.1
47.5°	1340.1	1223.0	1156.4	1115.7	1060.4	1086.4	1081.5	1094.6	1071.8	1123.8	1136.8
50°	1188.9	1107.6	1066.9	1047.4	1008.4	1049.0	1058.8	1076.7	1057.2	1102.7	1112.4
52.5°	1092.9	1039.3	1016.5	1011.6	984.0	1034.4	1050.6	1066.9	1044.1	1086.4	1084.8
55°	1039.3	1003.5	995.3	1005.1	984.0	1032.8	1049.0	1060.4	1040.9	1070.2	1068.5
57.5°	1019.7	1000.2	1005.1	1019.7	1005.1	1045.8	1053.9	1066.9	1047.4	1060.4	1066.9
60°	1018.1	1018.1	1037.6	1057.2	1047.4	1076.7	1081.5	1079.9	1062.0	1063.7	1066.9
62.5°	1008.4	1032.8	1065.3	1096.2	1092.9	1128.7	1132.0	1110.8	1096.2	1079.9	1075.0
65°	977.5	1018.1	1065.3	1107.6	1114.1	1169.4	1175.9	1154.7	1145.0	1117.3	1096.2
67.5°	909.1	961.2	1016.5	1068.5	1079.9	1154.7	1169.4	1177.5	1182.4	1164.5	1136.8
70°	793.7	847.3	904.3	964.4	980.7	1063.7	1094.6	1132.0	1161.2	1187.3	1177.5
72.5°	645.7	694.5	743.3	798.6	823.0	909.1	949.8	1014.9	1060.4	1127.1	1154.7
75°	512.3	541.6	570.9	605.0	624.5	709.1	759.5	837.6	899.4	992.1	1053.9
77.5°	403.3	418.0	432.6	447.3	455.4	502.6	543.2	621.3	692.8	809.9	901.0
80°	310.6	318.8	320.4	325.3	322.0	344.8	359.4	406.6	468.4	583.9	691.2
82.5°	200.0	206.6	209.8	217.9	201.7	230.9	240.7	245.6	278.1	362.7	439.1
85°	112.2	113.8	115.5	118.7	96.0	125.2	126.9	118.7	115.5	149.6	169.1
87.5°	27.6	26.0	27.6	27.6	11.4	26.0	26.0	17.9	13.0	24.4	19.5
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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	135°	145°	155°	165°	175°	180°
0°	2215.1	2215.1	2215.1	2215.1	2215.1	2215.1
2.5°	2041.1	2037.9	2039.5	2031.4	2028.1	2029.7
5°	2008.6	2002.1	2002.1	1997.2	1990.7	1990.7
7.5°	2023.2	2010.2	2005.3	1995.6	1985.8	1987.4
10°	2046.0	2023.2	2007.0	1992.3	1980.9	1980.9
12.5°	2060.6	2020.0	1995.6	1976.1	1963.0	1963.0
15°	2063.9	2002.1	1966.3	1945.2	1932.1	1932.1
17.5°	2044.4	1966.3	1920.8	1893.1	1878.5	1881.7
20°	1995.6	1899.6	1845.9	1816.7	1802.0	1803.7
22.5°	1919.1	1808.5	1746.7	1712.6	1697.9	1697.9
25°	1815.0	1694.7	1628.0	1600.4	1587.4	1587.4
27.5°	1696.3	1572.7	1514.2	1493.0	1484.9	1484.9
30°	1563.0	1460.5	1418.2	1403.6	1390.6	1390.6
32.5°	1450.7	1377.5	1362.9	1343.4	1309.2	1307.6
35°	1361.3	1353.2	1341.8	1283.2	1234.4	1227.9
37.5°	1312.5	1361.3	1289.7	1188.9	1149.9	1148.2
40°	1286.5	1332.0	1208.4	1159.6	1154.7	1154.7
42.5°	1224.7	1257.2	1203.5	1175.9	1175.9	1177.5
45°	1159.6	1187.3	1214.9	1190.5	1198.6	1200.3
47.5°	1114.1	1169.4	1214.9	1193.8	1210.0	1219.8
50°	1071.8	1153.1	1190.5	1190.5	1208.4	1210.0
52.5°	1062.0	1130.3	1167.7	1185.6	1187.3	1179.1
55°	1063.7	1112.4	1149.9	1172.6	1162.9	1162.9
57.5°	1062.0	1102.7	1135.2	1143.3	1148.2	1148.2
60°	1063.7	1089.7	1115.7	1112.4	1128.7	1128.7
62.5°	1068.5	1071.8	1084.8	1081.5	1105.9	1105.9
65°	1079.9	1049.0	1040.9	1044.1	1073.4	1071.8
67.5°	1101.1	1018.1	992.1	993.7	1036.0	1029.5
70°	1132.0	975.8	936.8	927.0	998.6	987.2
72.5°	1141.7	927.0	865.2	855.5	897.8	865.2
75°	1096.2	888.0	788.8	756.3	738.4	728.6
77.5°	977.5	863.6	709.1	640.8	613.1	606.6
80°	809.9	813.2	605.0	523.7	608.3	606.6
82.5°	611.5	702.6	484.7	453.8	440.8	367.6
85°	296.0	528.6	372.4	312.3	187.0	177.3
87.5°	26.0	221.2	214.7	139.9	63.4	60.2
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)