

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: P197247

Luminaire Tested: **NAV-AF-03-D-UNV-T2R-8030**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P197247
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-03-D-UNV-T2R-8030
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 80 CRI, 3000K, 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: 15489 lumens
Efficiency: N/A
Efficacy: 93.3 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type II - Short - Semi-Cutoff
BUG Rating: B2 - U0 - G2

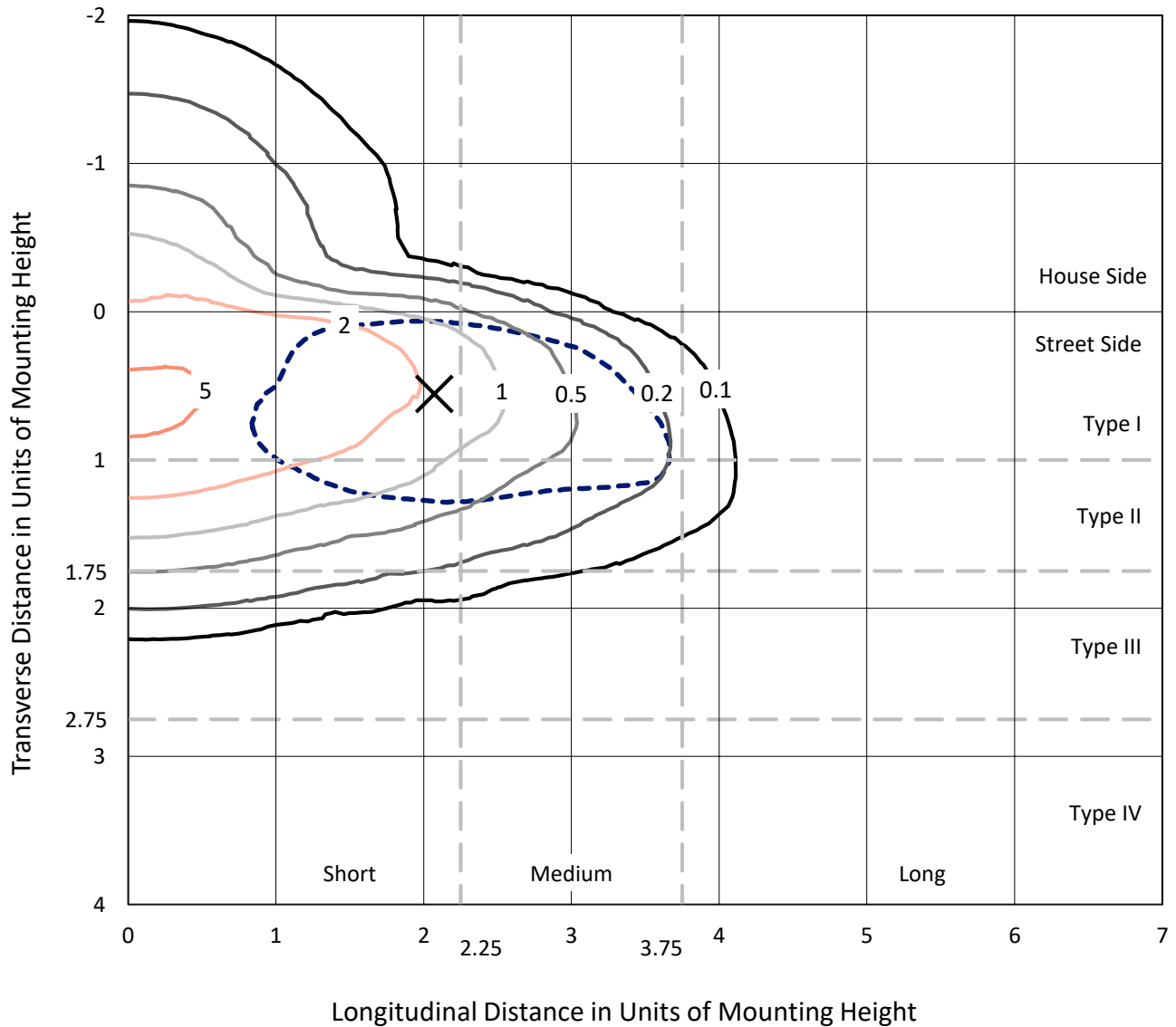
Input Watts (W): 166
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

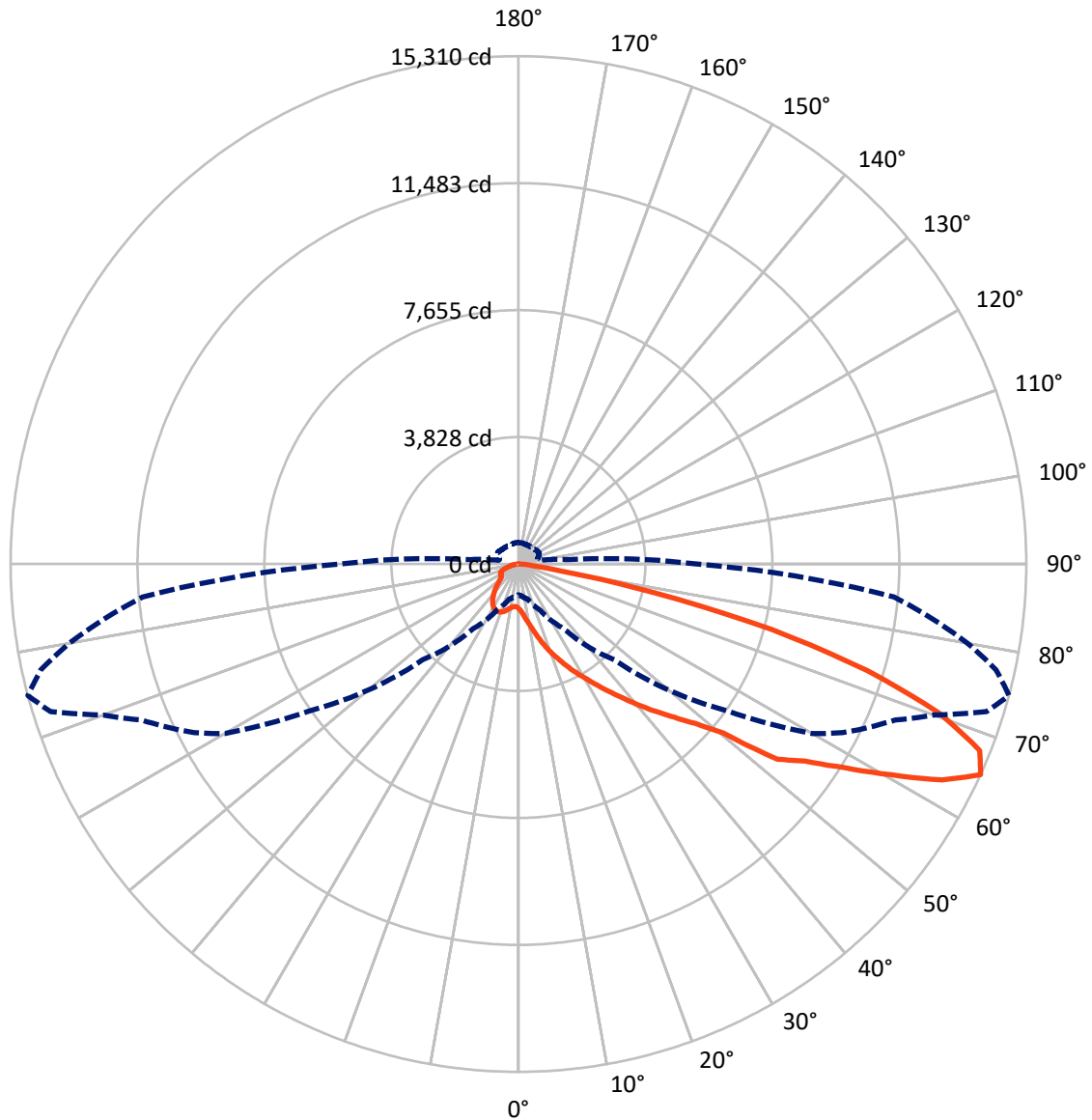
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 6.2 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 | 2327.5 | 0.0 | 2327.5 |
| | % Fixture | 15.0 | 0.0 | 15.0 |
| Street Side | Lumens | 13161.5 | 0.0 | 13161.5 |
| | % Fixture | 85.0 | 0.0 | 85.0 |
| Total | Lumens | 15489.0 | 0.0 | 15489.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 158.4 | 1.0 |
| 10°-20° | 605.1 | 3.9 |
| 20°-30° | 1221.2 | 7.9 |
| 30°-40° | 2074.0 | 13.4 |
| 40°-50° | 2892.7 | 18.7 |
| 50°-60° | 3545.4 | 22.9 |
| 60°-70° | 3335.8 | 21.5 |
| 70°-80° | 1462.7 | 9.4 |
| 80°-90° | 193.5 | 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° | 15489.0 | 100.0 |
| 0°-180° | 15489.0 | 100.0 |

Coefficient of Utilization



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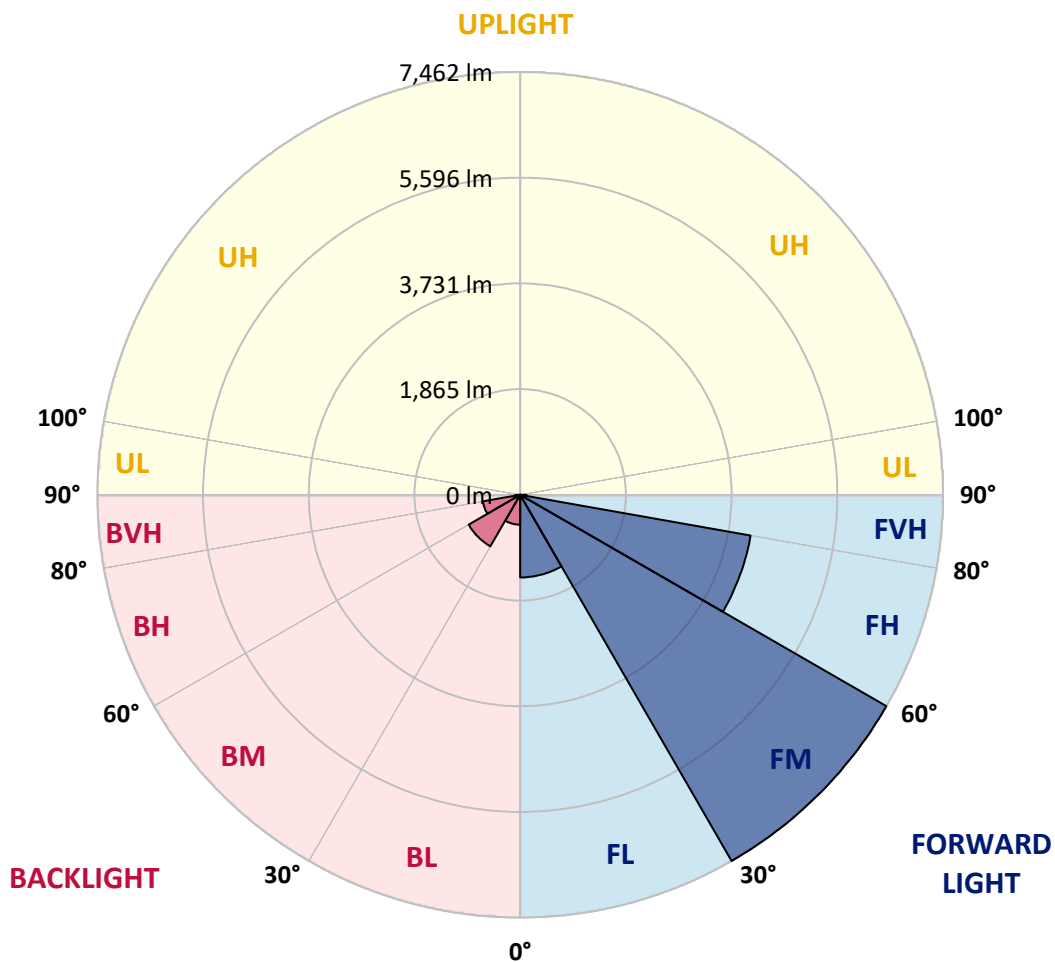
CATALOG NUMBER: NAV-AF-03-D-UNV-T2R-8030

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1457.9 | 9.4 | | | |
| FM (30°-60°) | 7461.9 | 48.2 | | | |
| FH (60°-80°) | 4129.5 | 26.7 | | | G2/5000 |
| FVH (80°-90°) | 112.2 | 0.7 | | | G2/225 |
| BL (0°-30°) | 526.9 | 3.4 | B2/1000 | | |
| BM (30°-60°) | 1050.3 | 6.8 | B2/2500 | | |
| BH (60°-80°) | 668.9 | 4.3 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 81.3 | 0.5 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G2

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 57.5° | 60° | 62.5° | 65° |
|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|
| 0° | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 |
| 2.5° | 1689.9 | 1670.1 | 1672.1 | 1644.5 | 1604.1 | 1559.8 | 1523.3 | 1503.6 | 1486.9 | 1481.9 | 1454.4 |
| 5° | 2210.1 | 2185.5 | 2176.6 | 2113.5 | 2019.0 | 1906.6 | 1795.3 | 1751.9 | 1716.5 | 1694.8 | 1641.6 |
| 7.5° | 2635.8 | 2623.0 | 2611.1 | 2553.0 | 2459.4 | 2315.5 | 2136.2 | 2072.2 | 2013.0 | 1948.0 | 1884.0 |
| 10° | 2925.5 | 2920.5 | 2915.6 | 2875.2 | 2797.4 | 2672.2 | 2479.1 | 2409.1 | 2335.2 | 2252.5 | 2168.7 |
| 12.5° | 3144.2 | 3144.2 | 3148.1 | 3114.6 | 3067.3 | 2970.8 | 2795.4 | 2730.4 | 2655.5 | 2568.8 | 2473.2 |
| 15° | 3291.0 | 3295.0 | 3315.7 | 3325.5 | 3300.9 | 3238.8 | 3085.1 | 3027.9 | 2957.0 | 2871.3 | 2776.7 |
| 17.5° | 3388.6 | 3396.5 | 3427.0 | 3459.5 | 3491.0 | 3469.4 | 3355.1 | 3301.9 | 3237.8 | 3159.0 | 3070.3 |
| 20° | 3615.2 | 3605.3 | 3606.3 | 3596.5 | 3642.8 | 3659.5 | 3596.5 | 3552.1 | 3500.9 | 3429.0 | 3348.2 |
| 22.5° | 4091.1 | 4072.4 | 4024.1 | 3900.9 | 3844.8 | 3838.9 | 3801.4 | 3777.8 | 3738.4 | 3693.0 | 3612.2 |
| 25° | 4711.9 | 4690.2 | 4594.6 | 4391.6 | 4224.1 | 4069.4 | 4000.5 | 3985.7 | 3960.1 | 3929.5 | 3871.4 |
| 27.5° | 5353.3 | 5329.7 | 5206.5 | 4950.3 | 4731.6 | 4419.2 | 4204.4 | 4184.7 | 4161.1 | 4148.3 | 4120.7 |
| 30° | 5917.9 | 5892.3 | 5771.1 | 5511.0 | 5246.9 | 4874.5 | 4479.3 | 4410.4 | 4370.0 | 4373.9 | 4358.1 |
| 32.5° | 6413.5 | 6390.9 | 6254.9 | 5989.9 | 5721.8 | 5360.2 | 4836.0 | 4728.6 | 4638.0 | 4604.5 | 4616.3 |
| 35° | 6829.4 | 6808.7 | 6659.9 | 6392.9 | 6122.9 | 5822.3 | 5295.2 | 5133.6 | 4985.8 | 4893.2 | 4882.3 |
| 37.5° | 7073.7 | 7061.9 | 6957.5 | 6730.8 | 6462.8 | 6242.1 | 5809.5 | 5630.2 | 5412.4 | 5277.5 | 5218.3 |
| 40° | 7059.9 | 7072.7 | 7055.0 | 6952.5 | 6744.6 | 6584.0 | 6345.6 | 6168.2 | 5955.4 | 5754.4 | 5634.1 |
| 42.5° | 6858.9 | 6876.7 | 6956.5 | 7009.7 | 6953.5 | 6856.0 | 6813.6 | 6681.6 | 6490.4 | 6277.6 | 6111.1 |
| 45° | 6583.0 | 6598.8 | 6702.3 | 6894.4 | 7055.0 | 7082.6 | 7223.5 | 7157.5 | 6995.9 | 6814.6 | 6631.3 |
| 47.5° | 6160.3 | 6190.9 | 6311.1 | 6616.5 | 6998.8 | 7264.9 | 7567.4 | 7597.9 | 7504.3 | 7354.5 | 7183.1 |
| 50° | 5548.4 | 5588.8 | 5757.3 | 6191.8 | 6786.0 | 7452.1 | 8078.8 | 8195.0 | 8157.6 | 8005.9 | 7832.4 |
| 52.5° | 4921.8 | 4962.2 | 5186.8 | 5648.9 | 6443.1 | 7528.9 | 8582.3 | 8879.8 | 9094.6 | 9251.3 | 9281.9 |
| 55° | 4269.5 | 4314.8 | 4561.1 | 5093.2 | 5985.9 | 7431.4 | 8941.9 | 9279.9 | 9497.6 | 9661.2 | 9727.2 |
| 57.5° | 3533.4 | 3584.7 | 3823.1 | 4361.1 | 5339.5 | 7039.2 | 9342.0 | 9820.8 | 10145.0 | 10397.3 | 10539.1 |
| 60° | 2689.0 | 2753.0 | 3000.3 | 3542.3 | 4490.2 | 6288.4 | 9520.3 | 10228.8 | 10744.1 | 11122.5 | 11347.1 |
| 62.5° | 1704.6 | 1769.7 | 2026.8 | 2589.5 | 3523.6 | 5262.7 | 9015.8 | 10049.4 | 10928.4 | 11488.0 | 11899.9 |
| 65° | 930.2 | 958.7 | 1101.6 | 1525.3 | 2375.6 | 4083.2 | 7736.9 | 8955.7 | 10221.9 | 11015.1 | 11647.7 |
| 67.5° | 697.6 | 701.6 | 716.3 | 819.8 | 1265.2 | 2757.0 | 6049.0 | 7165.4 | 8571.4 | 9592.2 | 10348.0 |
| 70° | 610.9 | 610.9 | 612.9 | 613.9 | 686.8 | 1493.8 | 4098.0 | 5125.7 | 6414.5 | 7447.2 | 8386.2 |
| 72.5° | 547.8 | 541.9 | 540.0 | 528.1 | 538.0 | 765.6 | 2230.8 | 3154.1 | 4240.9 | 5399.6 | 6275.6 |
| 75° | 473.0 | 472.0 | 472.0 | 460.2 | 466.1 | 539.0 | 967.6 | 1513.5 | 2355.9 | 3434.9 | 4297.0 |
| 77.5° | 408.9 | 402.0 | 403.0 | 396.1 | 414.8 | 412.9 | 459.2 | 623.7 | 1025.7 | 1804.1 | 2519.5 |
| 80° | 337.0 | 332.1 | 335.0 | 331.1 | 360.6 | 305.5 | 309.4 | 381.3 | 509.4 | 791.2 | 1115.4 |
| 82.5° | 249.3 | 251.3 | 270.0 | 268.0 | 303.5 | 205.9 | 226.6 | 284.8 | 342.9 | 394.1 | 428.6 |
| 85° | 145.8 | 148.8 | 194.1 | 204.0 | 222.7 | 108.4 | 138.9 | 169.5 | 191.2 | 211.8 | 220.7 |
| 87.5° | 15.8 | 20.7 | 108.4 | 111.3 | 99.5 | 32.5 | 56.2 | 70.9 | 75.9 | 80.8 | 70.9 |
| 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):

| | 67.5° | 70° | 72.5° | 75° | 77.5° | 80° | 85° | 90° | 95° | 100° | 102.5° |
|-------|---------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| 0° | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 |
| 2.5° | 1445.5 | 1432.7 | 1418.9 | 1411.0 | 1397.2 | 1385.4 | 1363.7 | 1346.0 | 1326.3 | 1312.5 | 1306.6 |
| 5° | 1615.0 | 1584.4 | 1551.9 | 1528.3 | 1498.7 | 1473.1 | 1423.8 | 1364.7 | 1346.0 | 1306.6 | 1296.7 |
| 7.5° | 1835.7 | 1780.5 | 1725.3 | 1680.0 | 1628.8 | 1586.4 | 1503.6 | 1397.2 | 1383.4 | 1320.3 | 1306.6 |
| 10° | 2094.8 | 2014.0 | 1932.2 | 1862.3 | 1787.4 | 1722.4 | 1600.2 | 1450.4 | 1435.6 | 1354.8 | 1341.0 |
| 12.5° | 2384.5 | 2286.0 | 2180.5 | 2076.1 | 1987.4 | 1895.8 | 1729.3 | 1533.2 | 1509.5 | 1414.0 | 1395.2 |
| 15° | 2683.1 | 2576.7 | 2454.5 | 2328.3 | 2219.0 | 2097.8 | 1887.9 | 1641.6 | 1598.2 | 1485.9 | 1460.3 |
| 17.5° | 2977.7 | 2862.4 | 2734.3 | 2593.4 | 2465.3 | 2320.5 | 2059.4 | 1762.8 | 1687.9 | 1556.8 | 1524.3 |
| 20° | 3262.4 | 3145.2 | 3010.2 | 2872.3 | 2712.6 | 2547.1 | 2234.7 | 1882.0 | 1767.7 | 1616.0 | 1573.6 |
| 22.5° | 3521.6 | 3421.1 | 3286.1 | 3127.5 | 2965.9 | 2779.6 | 2413.1 | 2001.2 | 1837.7 | 1661.3 | 1607.1 |
| 25° | 3794.5 | 3702.9 | 3568.9 | 3416.2 | 3228.0 | 3021.0 | 2597.3 | 2114.5 | 1893.8 | 1685.9 | 1618.9 |
| 27.5° | 4070.4 | 3991.6 | 3865.5 | 3704.9 | 3502.9 | 3273.3 | 2784.6 | 2219.0 | 1939.1 | 1693.8 | 1613.0 |
| 30° | 4365.0 | 4303.9 | 4187.7 | 4008.3 | 3804.4 | 3550.2 | 2988.5 | 2321.5 | 1967.7 | 1683.0 | 1586.4 |
| 32.5° | 4643.9 | 4641.9 | 4538.5 | 4352.2 | 4132.5 | 3852.7 | 3203.3 | 2424.9 | 1982.5 | 1652.4 | 1540.1 |
| 35° | 4933.6 | 4974.0 | 4896.1 | 4718.8 | 4487.2 | 4176.8 | 3440.8 | 2535.3 | 1983.5 | 1598.2 | 1480.0 |
| 37.5° | 5262.7 | 5334.6 | 5300.1 | 5131.6 | 4888.2 | 4546.3 | 3719.6 | 2659.4 | 1977.6 | 1523.3 | 1392.3 |
| 40° | 5637.1 | 5735.6 | 5734.7 | 5592.8 | 5332.6 | 4960.2 | 4043.8 | 2798.4 | 1963.8 | 1429.7 | 1288.8 |
| 42.5° | 6065.7 | 6183.0 | 6215.5 | 6075.6 | 5812.5 | 5412.4 | 4415.3 | 2951.1 | 1942.1 | 1337.1 | 1179.4 |
| 45° | 6556.4 | 6659.9 | 6721.0 | 6590.9 | 6326.8 | 5905.1 | 4841.9 | 3124.5 | 1915.5 | 1217.9 | 1054.3 |
| 47.5° | 7081.6 | 7201.8 | 7293.5 | 7182.1 | 6900.3 | 6466.8 | 5347.4 | 3348.2 | 1905.6 | 1081.9 | 919.3 |
| 50° | 7732.9 | 7857.1 | 8055.1 | 8004.9 | 7850.2 | 7501.4 | 6416.5 | 3876.3 | 1909.6 | 952.8 | 806.0 |
| 52.5° | 9348.9 | 9633.6 | 9883.9 | 9772.6 | 9405.0 | 8806.9 | 7285.6 | 4169.9 | 1826.8 | 847.4 | 727.2 |
| 55° | 9836.6 | 10159.8 | 10529.3 | 10483.0 | 10130.2 | 9527.2 | 7972.4 | 4415.3 | 1747.0 | 770.5 | 675.9 |
| 57.5° | 10689.9 | 11071.2 | 11587.5 | 11577.7 | 11145.1 | 10466.2 | 8856.2 | 4708.9 | 1712.5 | 726.2 | 650.3 |
| 60° | 11593.5 | 12079.2 | 12792.6 | 12904.0 | 12434.0 | 11727.5 | 9900.7 | 5069.6 | 1717.4 | 701.6 | 635.5 |
| 62.5° | 12253.6 | 12966.0 | 14003.6 | 14336.6 | 13782.9 | 13004.5 | 10984.5 | 5430.2 | 1687.9 | 673.0 | 617.8 |
| 65° | 12294.0 | 13319.8 | 14791.9 | 15310.1 | 14749.5 | 13749.4 | 11366.8 | 5359.2 | 1510.5 | 634.6 | 589.2 |
| 67.5° | 11308.7 | 12644.8 | 14433.2 | 15001.7 | 14428.3 | 13290.2 | 10696.8 | 4685.3 | 1227.7 | 567.6 | 540.0 |
| 70° | 9418.8 | 10969.7 | 12826.1 | 13459.7 | 12985.7 | 11833.9 | 9309.5 | 3742.3 | 917.3 | 478.9 | 466.1 |
| 72.5° | 7278.7 | 8725.1 | 10411.1 | 10997.3 | 10634.7 | 9621.8 | 7342.7 | 2727.4 | 655.2 | 388.2 | 378.4 |
| 75° | 5203.6 | 6435.2 | 7659.0 | 7882.7 | 7525.0 | 6594.9 | 4764.1 | 1703.6 | 459.2 | 318.3 | 304.5 |
| 77.5° | 3222.0 | 4023.1 | 4462.6 | 4174.9 | 3718.7 | 3091.0 | 1939.1 | 841.5 | 305.5 | 259.1 | 245.3 |
| 80° | 1429.7 | 1678.0 | 1566.7 | 1396.2 | 1102.6 | 906.5 | 592.2 | 373.4 | 197.1 | 200.0 | 192.1 |
| 82.5° | 480.8 | 508.4 | 494.6 | 491.7 | 443.4 | 388.2 | 251.3 | 161.6 | 110.4 | 128.1 | 125.1 |
| 85° | 234.5 | 245.3 | 246.3 | 255.2 | 221.7 | 172.4 | 68.0 | 64.0 | 47.3 | 69.0 | 71.9 |
| 87.5° | 70.9 | 71.9 | 65.0 | 70.9 | 57.1 | 39.4 | 12.8 | 17.7 | 8.9 | 16.8 | 16.8 |
| 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):

| | 105° | 107.5° | 110° | 112.5° | 115° | 117.5° | 120° | 122.5° | 125° | 127.5° | 130° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 |
| 2.5° | 1295.7 | 1291.8 | 1284.9 | 1277.0 | 1275.0 | 1265.2 | 1262.2 | 1257.3 | 1254.3 | 1249.4 | 1245.5 |
| 5° | 1283.9 | 1277.0 | 1269.1 | 1260.2 | 1260.2 | 1246.4 | 1240.5 | 1234.6 | 1234.6 | 1225.8 | 1221.8 |
| 7.5° | 1295.7 | 1286.8 | 1278.0 | 1270.1 | 1273.1 | 1257.3 | 1251.4 | 1245.5 | 1244.5 | 1235.6 | 1231.7 |
| 10° | 1329.2 | 1320.3 | 1309.5 | 1301.6 | 1298.7 | 1285.9 | 1279.0 | 1270.1 | 1264.2 | 1258.3 | 1252.4 |
| 12.5° | 1380.5 | 1368.6 | 1354.8 | 1338.1 | 1331.2 | 1320.3 | 1309.5 | 1297.7 | 1283.9 | 1278.0 | 1269.1 |
| 15° | 1441.5 | 1421.8 | 1403.1 | 1382.4 | 1363.7 | 1352.9 | 1338.1 | 1319.4 | 1300.6 | 1292.8 | 1280.9 |
| 17.5° | 1491.8 | 1471.1 | 1444.5 | 1419.9 | 1386.4 | 1377.5 | 1356.8 | 1334.1 | 1303.6 | 1300.6 | 1282.9 |
| 20° | 1534.2 | 1502.6 | 1470.1 | 1440.6 | 1389.3 | 1384.4 | 1358.8 | 1332.2 | 1288.8 | 1288.8 | 1267.1 |
| 22.5° | 1557.8 | 1514.5 | 1476.0 | 1436.6 | 1372.6 | 1368.6 | 1339.1 | 1307.5 | 1254.3 | 1256.3 | 1229.7 |
| 25° | 1561.8 | 1509.5 | 1461.3 | 1414.0 | 1340.1 | 1333.2 | 1295.7 | 1261.2 | 1203.1 | 1199.2 | 1171.6 |
| 27.5° | 1546.0 | 1484.9 | 1428.7 | 1371.6 | 1291.8 | 1277.0 | 1235.6 | 1194.2 | 1137.1 | 1127.2 | 1097.7 |
| 30° | 1509.5 | 1437.6 | 1374.5 | 1308.5 | 1224.8 | 1201.1 | 1157.8 | 1115.4 | 1057.3 | 1044.5 | 1016.9 |
| 32.5° | 1451.4 | 1369.6 | 1299.7 | 1233.6 | 1141.0 | 1111.5 | 1068.1 | 1025.7 | 969.6 | 959.7 | 934.1 |
| 35° | 1374.5 | 1282.9 | 1209.0 | 1139.0 | 1046.4 | 1015.9 | 974.5 | 937.1 | 885.8 | 881.9 | 864.1 |
| 37.5° | 1278.0 | 1182.4 | 1103.6 | 1036.6 | 948.9 | 933.1 | 890.7 | 863.2 | 820.8 | 824.7 | 815.9 |
| 40° | 1168.6 | 1071.1 | 996.2 | 937.1 | 861.2 | 847.4 | 821.8 | 801.1 | 764.6 | 775.5 | 776.4 |
| 42.5° | 1058.3 | 960.7 | 892.7 | 839.5 | 774.5 | 765.6 | 747.9 | 736.0 | 708.5 | 730.1 | 739.0 |
| 45° | 933.1 | 842.5 | 784.3 | 743.9 | 695.6 | 695.6 | 686.8 | 685.8 | 667.1 | 697.6 | 706.5 |
| 47.5° | 811.9 | 741.0 | 700.6 | 675.9 | 642.4 | 658.2 | 655.2 | 663.1 | 649.3 | 680.9 | 688.7 |
| 50° | 720.3 | 671.0 | 646.4 | 634.6 | 610.9 | 635.5 | 641.5 | 652.3 | 640.5 | 668.1 | 674.0 |
| 52.5° | 662.1 | 629.6 | 615.8 | 612.9 | 596.1 | 626.7 | 636.5 | 646.4 | 632.6 | 658.2 | 657.2 |
| 55° | 629.6 | 608.0 | 603.0 | 608.9 | 596.1 | 625.7 | 635.5 | 642.4 | 630.6 | 648.4 | 647.4 |
| 57.5° | 617.8 | 606.0 | 608.9 | 617.8 | 608.9 | 633.6 | 638.5 | 646.4 | 634.6 | 642.4 | 646.4 |
| 60° | 616.8 | 616.8 | 628.6 | 640.5 | 634.6 | 652.3 | 655.2 | 654.3 | 643.4 | 644.4 | 646.4 |
| 62.5° | 610.9 | 625.7 | 645.4 | 664.1 | 662.1 | 683.8 | 685.8 | 673.0 | 664.1 | 654.3 | 651.3 |
| 65° | 592.2 | 616.8 | 645.4 | 671.0 | 675.0 | 708.5 | 712.4 | 699.6 | 693.7 | 676.9 | 664.1 |
| 67.5° | 550.8 | 582.3 | 615.8 | 647.4 | 654.3 | 699.6 | 708.5 | 713.4 | 716.3 | 705.5 | 688.7 |
| 70° | 480.8 | 513.4 | 547.8 | 584.3 | 594.2 | 644.4 | 663.1 | 685.8 | 703.5 | 719.3 | 713.4 |
| 72.5° | 391.2 | 420.7 | 450.3 | 483.8 | 498.6 | 550.8 | 575.4 | 614.8 | 642.4 | 682.8 | 699.6 |
| 75° | 310.4 | 328.1 | 345.9 | 366.5 | 378.4 | 429.6 | 460.2 | 507.4 | 544.9 | 601.1 | 638.5 |
| 77.5° | 244.4 | 253.2 | 262.1 | 271.0 | 275.9 | 304.5 | 329.1 | 376.4 | 419.8 | 490.7 | 545.9 |
| 80° | 188.2 | 193.1 | 194.1 | 197.1 | 195.1 | 208.9 | 217.8 | 246.3 | 283.8 | 353.7 | 418.8 |
| 82.5° | 121.2 | 125.1 | 127.1 | 132.0 | 122.2 | 139.9 | 145.8 | 148.8 | 168.5 | 219.7 | 266.0 |
| 85° | 68.0 | 69.0 | 70.0 | 71.9 | 58.1 | 75.9 | 76.9 | 71.9 | 70.0 | 90.7 | 102.5 |
| 87.5° | 16.8 | 15.8 | 16.8 | 16.8 | 6.9 | 15.8 | 15.8 | 10.8 | 7.9 | 14.8 | 11.8 |
| 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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| | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|
| 0° | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 | 1342.0 |
| 2.5° | 1236.6 | 1234.6 | 1235.6 | 1230.7 | 1228.7 | 1229.7 |
| 5° | 1216.9 | 1212.9 | 1212.9 | 1210.0 | 1206.1 | 1206.1 |
| 7.5° | 1225.8 | 1217.9 | 1214.9 | 1209.0 | 1203.1 | 1204.1 |
| 10° | 1239.6 | 1225.8 | 1215.9 | 1207.0 | 1200.1 | 1200.1 |
| 12.5° | 1248.4 | 1223.8 | 1209.0 | 1197.2 | 1189.3 | 1189.3 |
| 15° | 1250.4 | 1212.9 | 1191.3 | 1178.5 | 1170.6 | 1170.6 |
| 17.5° | 1238.6 | 1191.3 | 1163.7 | 1146.9 | 1138.1 | 1140.0 |
| 20° | 1209.0 | 1150.9 | 1118.4 | 1100.6 | 1091.8 | 1092.7 |
| 22.5° | 1162.7 | 1095.7 | 1058.3 | 1037.6 | 1028.7 | 1028.7 |
| 25° | 1099.6 | 1026.7 | 986.3 | 969.6 | 961.7 | 961.7 |
| 27.5° | 1027.7 | 952.8 | 917.3 | 904.5 | 899.6 | 899.6 |
| 30° | 946.9 | 884.8 | 859.2 | 850.3 | 842.5 | 842.5 |
| 32.5° | 878.9 | 834.6 | 825.7 | 813.9 | 793.2 | 792.2 |
| 35° | 824.7 | 819.8 | 812.9 | 777.4 | 747.9 | 743.9 |
| 37.5° | 795.2 | 824.7 | 781.4 | 720.3 | 696.6 | 695.6 |
| 40° | 779.4 | 807.0 | 732.1 | 702.5 | 699.6 | 699.6 |
| 42.5° | 742.0 | 761.7 | 729.1 | 712.4 | 712.4 | 713.4 |
| 45° | 702.5 | 719.3 | 736.0 | 721.3 | 726.2 | 727.2 |
| 47.5° | 675.0 | 708.5 | 736.0 | 723.2 | 733.1 | 739.0 |
| 50° | 649.3 | 698.6 | 721.3 | 721.3 | 732.1 | 733.1 |
| 52.5° | 643.4 | 684.8 | 707.5 | 718.3 | 719.3 | 714.4 |
| 55° | 644.4 | 674.0 | 696.6 | 710.4 | 704.5 | 704.5 |
| 57.5° | 643.4 | 668.1 | 687.8 | 692.7 | 695.6 | 695.6 |
| 60° | 644.4 | 660.2 | 675.9 | 674.0 | 683.8 | 683.8 |
| 62.5° | 647.4 | 649.3 | 657.2 | 655.2 | 670.0 | 670.0 |
| 65° | 654.3 | 635.5 | 630.6 | 632.6 | 650.3 | 649.3 |
| 67.5° | 667.1 | 616.8 | 601.1 | 602.0 | 627.7 | 623.7 |
| 70° | 685.8 | 591.2 | 567.6 | 561.6 | 605.0 | 598.1 |
| 72.5° | 691.7 | 561.6 | 524.2 | 518.3 | 543.9 | 524.2 |
| 75° | 664.1 | 538.0 | 477.9 | 458.2 | 447.3 | 441.4 |
| 77.5° | 592.2 | 523.2 | 429.6 | 388.2 | 371.5 | 367.5 |
| 80° | 490.7 | 492.7 | 366.5 | 317.3 | 368.5 | 367.5 |
| 82.5° | 370.5 | 425.7 | 293.6 | 274.9 | 267.0 | 222.7 |
| 85° | 179.3 | 320.2 | 225.6 | 189.2 | 113.3 | 107.4 |
| 87.5° | 15.8 | 134.0 | 130.1 | 84.7 | 38.4 | 36.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)