

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: P196367

Luminaire Tested: **NAV-AF-05-D-UNV-T4FT-1200**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196367
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24256)
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: LUMARK
Catalog Number: NAV-AF-05-D-UNV-T4FT-1200
Description: NAVION ROADWAY AND AREA LUMINAIRE
(5) 70 CRI, 4000K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV FORWARD THROW OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 34010.1 lumens
Efficiency: N/A
Efficacy: 106.3 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B3 - U0 - G5

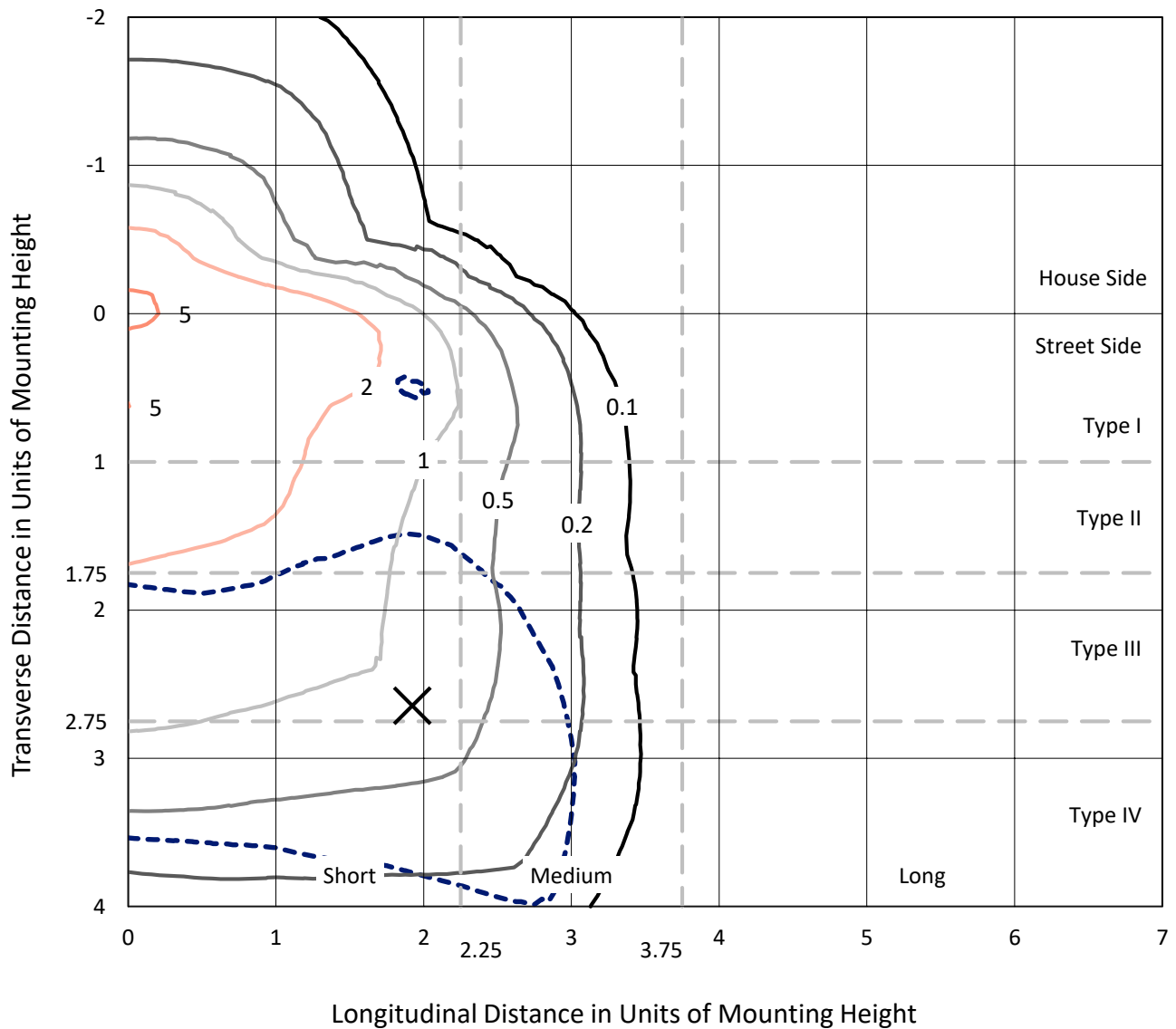
Input Watts (W): 320
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

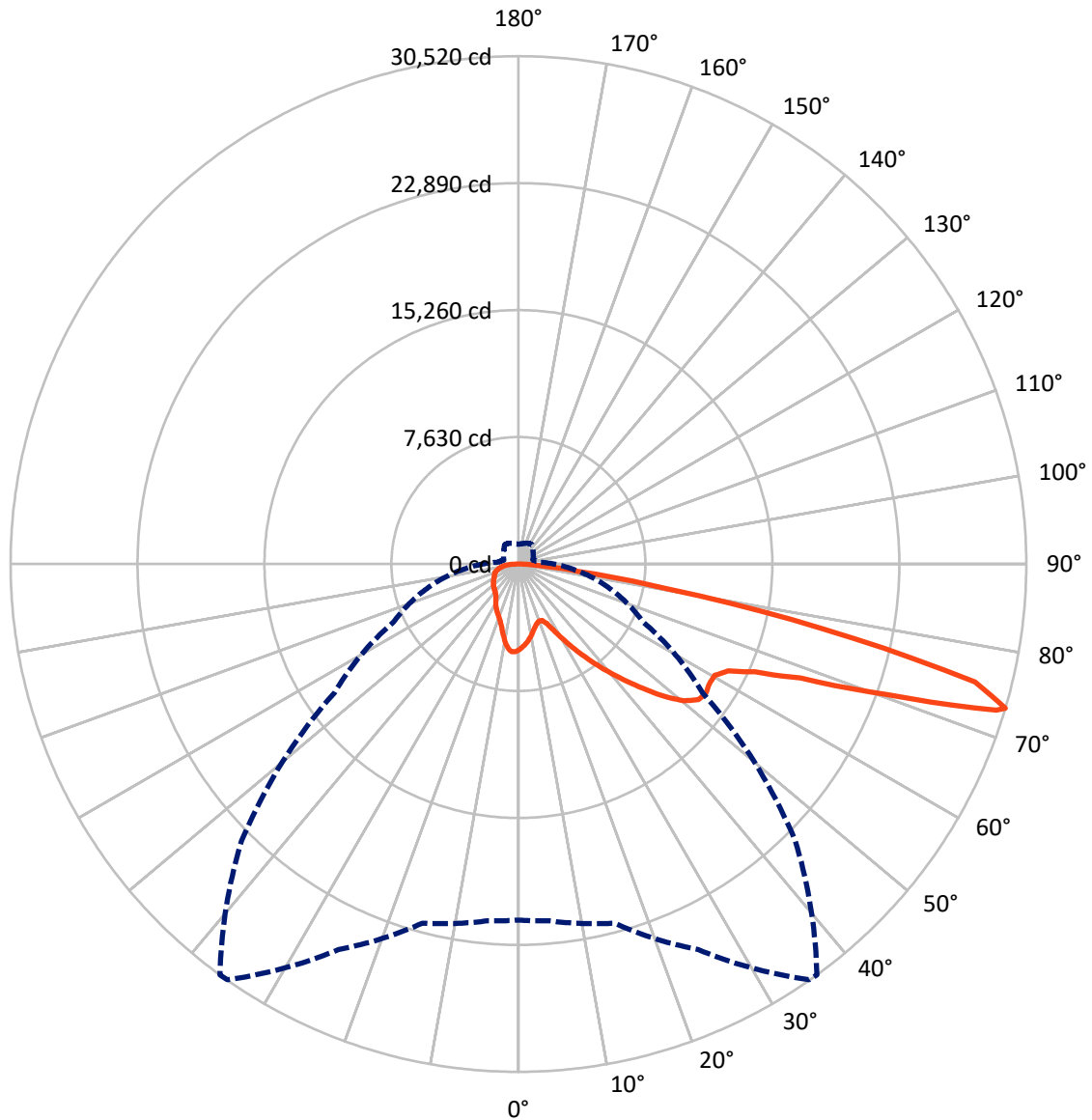
× Max cd
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 5.7 fc
 Type IV - Short - Non-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 36-Deg Lateral - - - Horizontal Cone Through 73-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 6558.2 | 0.0 | 6558.2 |
| | % Fixture | 19.3 | 0.0 | 19.3 |
| Street Side | Lumens | 27451.9 | 0.0 | 27451.9 |
| | % Fixture | 80.7 | 0.0 | 80.7 |
| Total | Lumens | 34010.1 | 0.0 | 34010.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 467.9 | 1.4 |
| 10°-20° | 1175.2 | 3.5 |
| 20°-30° | 1884.1 | 5.5 |
| 30°-40° | 3116.4 | 9.2 |
| 40°-50° | 4822.4 | 14.2 |
| 50°-60° | 6455.7 | 19.0 |
| 60°-70° | 8433.2 | 24.8 |
| 70°-80° | 6888.4 | 20.3 |
| 80°-90° | 766.7 | 2.3 |
| 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° | 34010.1 | 100.0 |
| 0°-180° | 34010.1 | 100.0 |



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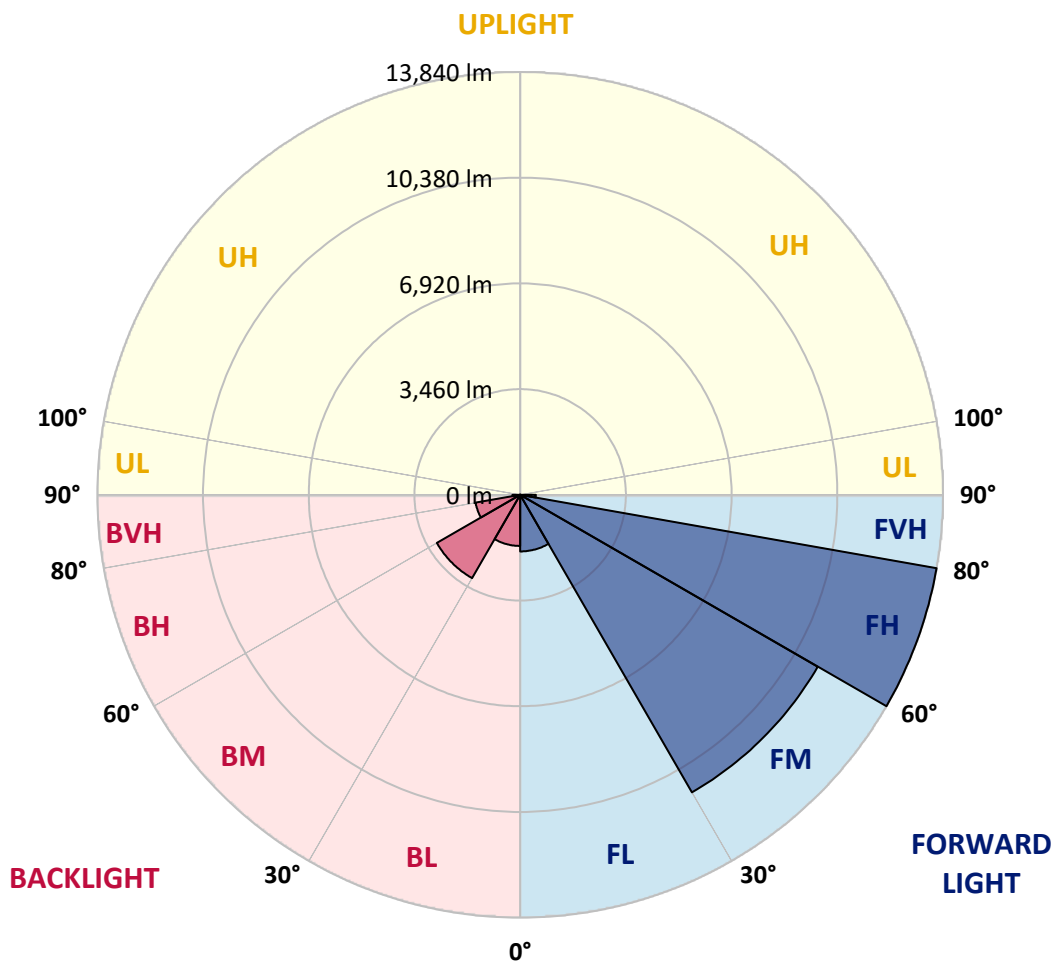
CATALOG NUMBER: NAV-AF-05-D-UNV-T4FT-1200

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|---------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 1853.2 | 5.4 | | | |
| FM | (30°-60°) | 11244.9 | 33.1 | | | |
| FH | (60°-80°) | 13839.6 | 40.7 | | | G5 |
| FVH | (80°-90°) | 514.2 | 1.5 | | | G4/750 |
| BL | (0°-30°) | 1674.0 | 4.9 | B3/2500 | | |
| BM | (30°-60°) | 3149.6 | 9.3 | B3/5000 | | |
| BH | (60°-80°) | 1482.0 | 4.4 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 252.5 | 0.7 | | | G3/500 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G5

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 36° | 45° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 |
| 2.5° | 4954.9 | 4967.9 | 4970.0 | 4985.1 | 4985.1 | 4983.0 | 4989.4 | 5015.4 | 5028.3 | 5058.6 | 5084.6 |
| 5° | 4710.7 | 4725.8 | 4732.3 | 4758.3 | 4790.7 | 4792.8 | 4816.6 | 4866.3 | 4913.8 | 4980.8 | 5037.0 |
| 7.5° | 4436.3 | 4453.5 | 4470.8 | 4524.9 | 4572.4 | 4576.8 | 4622.1 | 4702.1 | 4764.7 | 4846.8 | 4948.4 |
| 10° | 4170.5 | 4174.9 | 4192.1 | 4261.2 | 4323.9 | 4330.4 | 4395.2 | 4485.9 | 4570.2 | 4684.8 | 4799.3 |
| 12.5° | 3952.3 | 3965.2 | 3960.9 | 4012.7 | 4066.7 | 4071.1 | 4157.6 | 4272.0 | 4395.2 | 4524.9 | 4661.0 |
| 15° | 3876.6 | 3874.4 | 3829.1 | 3827.0 | 3850.7 | 3855.0 | 3939.3 | 4073.3 | 4211.6 | 4371.5 | 4546.5 |
| 17.5° | 3928.4 | 3911.2 | 3792.4 | 3718.8 | 3703.7 | 3708.1 | 3770.7 | 3917.7 | 4064.6 | 4248.3 | 4457.9 |
| 20° | 4213.7 | 4146.7 | 3868.0 | 3690.8 | 3641.1 | 3641.1 | 3677.8 | 3796.7 | 3958.7 | 4172.6 | 4436.3 |
| 22.5° | 4890.1 | 4786.4 | 4192.1 | 3876.6 | 3701.5 | 3684.3 | 3656.2 | 3747.0 | 3926.3 | 4183.5 | 4524.9 |
| 25° | 5741.4 | 5691.8 | 4786.4 | 4371.5 | 4010.6 | 3954.4 | 3768.6 | 3801.0 | 3993.3 | 4300.2 | 4766.8 |
| 27.5° | 6530.2 | 6443.8 | 5566.4 | 5091.0 | 4581.1 | 4494.6 | 4101.3 | 3969.6 | 4153.2 | 4516.2 | 5117.0 |
| 30° | 6990.4 | 6932.1 | 6368.1 | 5914.3 | 5307.1 | 5196.9 | 4632.9 | 4302.3 | 4438.5 | 4872.8 | 5614.0 |
| 32.5° | 7491.8 | 7457.2 | 7171.9 | 6759.2 | 6093.7 | 5966.2 | 5320.1 | 4844.7 | 4875.0 | 5346.0 | 6212.5 |
| 35° | 7978.0 | 8023.3 | 7861.3 | 7558.8 | 6940.7 | 6821.9 | 6242.8 | 5553.5 | 5413.0 | 5877.6 | 6852.1 |
| 37.5° | 8561.4 | 8572.2 | 8470.6 | 8274.0 | 7831.0 | 7733.8 | 7256.2 | 6309.8 | 5998.6 | 6443.8 | 7470.2 |
| 40° | 9726.1 | 9555.4 | 9157.8 | 9002.2 | 8738.6 | 8678.1 | 8133.6 | 7003.4 | 6543.1 | 7025.0 | 8053.6 |
| 42.5° | 10985.9 | 10720.1 | 10097.8 | 9842.8 | 9737.0 | 9680.7 | 8864.0 | 7465.8 | 7053.1 | 7606.3 | 8626.2 |
| 45° | 12001.6 | 11785.4 | 11176.0 | 10860.6 | 10873.6 | 10782.8 | 9501.4 | 7878.6 | 7606.3 | 8189.7 | 9265.9 |
| 47.5° | 13002.0 | 12641.1 | 11958.3 | 11912.9 | 12064.2 | 11930.2 | 10110.7 | 8291.3 | 8183.2 | 8825.0 | 9905.4 |
| 50° | 13066.9 | 12738.4 | 12461.8 | 12824.8 | 13084.2 | 12917.7 | 10664.0 | 8831.5 | 8781.8 | 9594.3 | 10731.0 |
| 52.5° | 12278.1 | 12230.6 | 12652.0 | 13263.5 | 13693.5 | 13544.4 | 11115.6 | 9386.9 | 9393.3 | 10555.9 | 11735.7 |
| 55° | 11990.7 | 11930.2 | 12435.8 | 13187.9 | 13769.1 | 13680.5 | 11452.7 | 10013.5 | 10071.9 | 11722.8 | 12814.0 |
| 57.5° | 12474.8 | 12323.5 | 12422.9 | 13045.2 | 13591.9 | 13540.1 | 11802.7 | 10709.3 | 10815.1 | 13066.9 | 13810.1 |
| 60° | 13976.6 | 13667.5 | 13140.3 | 13257.0 | 13598.4 | 13568.1 | 12304.1 | 11485.1 | 11662.3 | 14467.1 | 14441.1 |
| 62.5° | 16226.0 | 15876.0 | 14802.0 | 14283.4 | 14207.8 | 14149.5 | 13131.6 | 12438.1 | 12526.6 | 15478.4 | 14073.8 |
| 65° | 18693.7 | 18317.8 | 17040.7 | 16191.5 | 15746.3 | 15621.0 | 14467.1 | 13587.7 | 13032.3 | 15476.2 | 12643.3 |
| 67.5° | 21464.0 | 21066.4 | 19793.7 | 18983.3 | 18501.4 | 18287.5 | 16634.4 | 14516.8 | 12868.0 | 14166.7 | 10117.2 |
| 70° | 24301.2 | 23923.0 | 23339.6 | 23622.7 | 23834.4 | 23508.2 | 20048.6 | 14825.8 | 11688.2 | 11106.9 | 6793.8 |
| 72.5° | 22795.1 | 22764.8 | 23207.8 | 25891.6 | 29973.6 | 30038.3 | 23458.5 | 13952.7 | 9030.3 | 6601.5 | 3621.7 |
| 73° | 21397.1 | 21524.5 | 22345.6 | 25556.7 | 30498.7 | 30520.2 | 23525.5 | 13501.2 | 8291.3 | 5687.4 | 3180.8 |
| 75° | 11085.3 | 11949.7 | 14996.5 | 20722.8 | 28240.5 | 28342.1 | 20738.0 | 10220.9 | 4942.0 | 3159.2 | 2143.6 |
| 77.5° | 2969.0 | 2930.1 | 4831.7 | 10095.6 | 18827.7 | 18693.7 | 13103.6 | 4948.4 | 2368.3 | 1981.6 | 1503.9 |
| 80° | 1017.7 | 1030.7 | 1644.4 | 3693.0 | 8788.3 | 9101.6 | 5687.4 | 2158.7 | 1558.0 | 1380.8 | 1065.3 |
| 82.5° | 518.6 | 535.9 | 860.0 | 1570.9 | 3675.7 | 3597.8 | 1830.3 | 1270.6 | 1043.7 | 838.4 | 596.4 |
| 85° | 276.6 | 285.2 | 473.2 | 814.7 | 1348.4 | 1363.5 | 643.9 | 678.5 | 663.4 | 475.4 | 293.9 |
| 87.5° | 136.2 | 140.5 | 226.9 | 358.7 | 499.2 | 481.9 | 224.7 | 293.9 | 326.3 | 267.9 | 162.0 |
| 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):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 | 5151.6 |
| 2.5° | 5117.0 | 5117.0 | 5145.0 | 5192.6 | 5227.2 | 5259.6 | 5281.2 | 5315.8 | 5335.2 | 5333.1 | 5330.9 |
| 5° | 5082.4 | 5104.0 | 5160.2 | 5218.5 | 5257.5 | 5283.3 | 5283.3 | 5298.5 | 5298.5 | 5292.0 | 5283.3 |
| 7.5° | 5002.4 | 5039.2 | 5121.3 | 5173.2 | 5183.9 | 5155.9 | 5099.7 | 5056.4 | 5002.4 | 4974.3 | 4963.6 |
| 10° | 4875.0 | 4922.4 | 5026.2 | 5050.0 | 4993.7 | 4894.4 | 4758.3 | 4641.5 | 4537.8 | 4490.3 | 4475.2 |
| 12.5° | 4749.6 | 4812.3 | 4909.6 | 4872.8 | 4738.8 | 4544.4 | 4334.8 | 4174.9 | 4058.1 | 4012.7 | 3997.6 |
| 15° | 4645.9 | 4721.5 | 4797.1 | 4682.7 | 4449.2 | 4179.2 | 3947.9 | 3798.8 | 3710.2 | 3675.7 | 3667.0 |
| 17.5° | 4576.8 | 4665.4 | 4691.3 | 4477.4 | 4153.2 | 3850.7 | 3645.4 | 3548.2 | 3509.2 | 3494.1 | 3489.8 |
| 20° | 4581.1 | 4680.5 | 4617.8 | 4278.5 | 3868.0 | 3563.2 | 3427.2 | 3399.1 | 3399.1 | 3399.1 | 3396.9 |
| 22.5° | 4699.9 | 4786.4 | 4587.5 | 4092.7 | 3593.5 | 3321.3 | 3262.9 | 3286.7 | 3304.0 | 3304.0 | 3301.8 |
| 25° | 4946.3 | 4993.7 | 4609.1 | 3913.4 | 3336.4 | 3111.7 | 3113.9 | 3159.2 | 3174.3 | 3174.3 | 3170.0 |
| 27.5° | 5322.2 | 5283.3 | 4648.1 | 3714.5 | 3083.6 | 2921.5 | 2951.7 | 2992.8 | 3003.6 | 2997.1 | 2995.0 |
| 30° | 5793.3 | 5637.7 | 4680.5 | 3481.2 | 2845.8 | 2744.3 | 2770.3 | 2794.0 | 2785.4 | 2770.3 | 2768.1 |
| 32.5° | 6320.6 | 5998.6 | 4661.0 | 3219.7 | 2636.2 | 2560.7 | 2575.8 | 2588.8 | 2575.8 | 2539.1 | 2539.1 |
| 35° | 6843.5 | 6324.9 | 4555.1 | 2934.4 | 2469.9 | 2383.5 | 2381.3 | 2422.3 | 2420.2 | 2376.9 | 2379.1 |
| 37.5° | 7301.6 | 6582.1 | 4349.9 | 2673.0 | 2327.3 | 2253.8 | 2262.5 | 2288.3 | 2301.3 | 2243.0 | 2236.5 |
| 40° | 7701.4 | 6759.2 | 4060.3 | 2450.5 | 2212.7 | 2217.0 | 2193.3 | 2152.2 | 2137.1 | 2111.2 | 2106.9 |
| 42.5° | 8077.3 | 6882.4 | 3753.4 | 2264.6 | 2154.4 | 2204.0 | 2124.2 | 2026.9 | 1985.9 | 2009.6 | 2024.7 |
| 45° | 8446.9 | 7020.7 | 3457.4 | 2111.2 | 2080.9 | 2165.2 | 2055.0 | 1947.0 | 1899.4 | 1910.3 | 1925.3 |
| 47.5° | 8898.4 | 7213.0 | 3100.9 | 1947.0 | 1968.6 | 2093.9 | 2011.7 | 1895.1 | 1823.8 | 1780.5 | 1767.6 |
| 50° | 9492.8 | 7491.8 | 2638.4 | 1769.8 | 1849.7 | 2016.1 | 1975.0 | 1819.4 | 1741.7 | 1655.2 | 1633.7 |
| 52.5° | 10236.1 | 7755.4 | 2171.7 | 1627.1 | 1752.5 | 1949.1 | 1914.6 | 1754.7 | 1659.5 | 1555.8 | 1538.5 |
| 55° | 10977.3 | 7792.1 | 1769.8 | 1503.9 | 1642.2 | 1858.4 | 1841.1 | 1702.8 | 1568.8 | 1484.5 | 1467.2 |
| 57.5° | 11495.9 | 7444.2 | 1499.6 | 1400.2 | 1536.4 | 1746.0 | 1774.1 | 1640.1 | 1493.2 | 1428.3 | 1417.5 |
| 60° | 11504.5 | 6612.3 | 1335.5 | 1331.1 | 1456.5 | 1648.8 | 1705.0 | 1566.6 | 1445.6 | 1402.4 | 1393.8 |
| 62.5° | 10590.5 | 5328.8 | 1229.6 | 1279.2 | 1398.1 | 1568.8 | 1653.1 | 1525.6 | 1434.8 | 1417.5 | 1408.9 |
| 65° | 8876.9 | 3937.1 | 1145.3 | 1231.7 | 1344.1 | 1501.8 | 1609.8 | 1512.6 | 1430.5 | 1424.0 | 1417.5 |
| 67.5° | 6553.9 | 2699.0 | 1074.0 | 1171.2 | 1283.6 | 1432.6 | 1568.8 | 1493.2 | 1404.6 | 1430.5 | 1421.9 |
| 70° | 4123.0 | 1802.1 | 1007.0 | 1102.0 | 1203.6 | 1352.8 | 1514.8 | 1458.6 | 1372.2 | 1357.0 | 1328.9 |
| 72.5° | 2327.3 | 1303.0 | 927.0 | 1013.4 | 1099.9 | 1246.9 | 1441.3 | 1400.2 | 1298.7 | 1238.2 | 1210.0 |
| 73° | 2102.6 | 1233.9 | 907.6 | 991.9 | 1076.1 | 1225.2 | 1424.0 | 1382.9 | 1277.1 | 1210.0 | 1184.2 |
| 75° | 1538.5 | 1009.1 | 819.0 | 903.3 | 976.7 | 1125.9 | 1341.9 | 1296.5 | 1182.0 | 1102.0 | 1084.7 |
| 77.5° | 1115.0 | 778.0 | 704.4 | 780.1 | 844.9 | 987.6 | 1218.7 | 1166.9 | 1054.5 | 1011.3 | 994.0 |
| 80° | 803.8 | 589.9 | 583.4 | 656.9 | 713.1 | 857.8 | 1086.9 | 1032.9 | 924.8 | 1052.3 | 1024.3 |
| 82.5° | 479.8 | 378.2 | 427.9 | 509.9 | 568.4 | 719.5 | 944.3 | 881.7 | 778.0 | 786.5 | 669.8 |
| 85° | 229.0 | 213.9 | 265.8 | 334.9 | 376.0 | 492.7 | 786.5 | 736.8 | 622.4 | 509.9 | 499.2 |
| 87.5° | 101.6 | 97.3 | 127.5 | 149.1 | 201.0 | 296.0 | 538.1 | 477.5 | 451.6 | 270.1 | 211.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)