

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: P196349

Luminaire Tested: **NAV-AF-05-D-UNV-T4FT-600**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196349
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-600
Description: NAVION ROADWAY AND AREA LUMINAIRE
(5) 70 CRI, 4000K, 615mA 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: 20426.3 lumens
Efficiency: N/A
Efficacy: 126.1 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 - G4

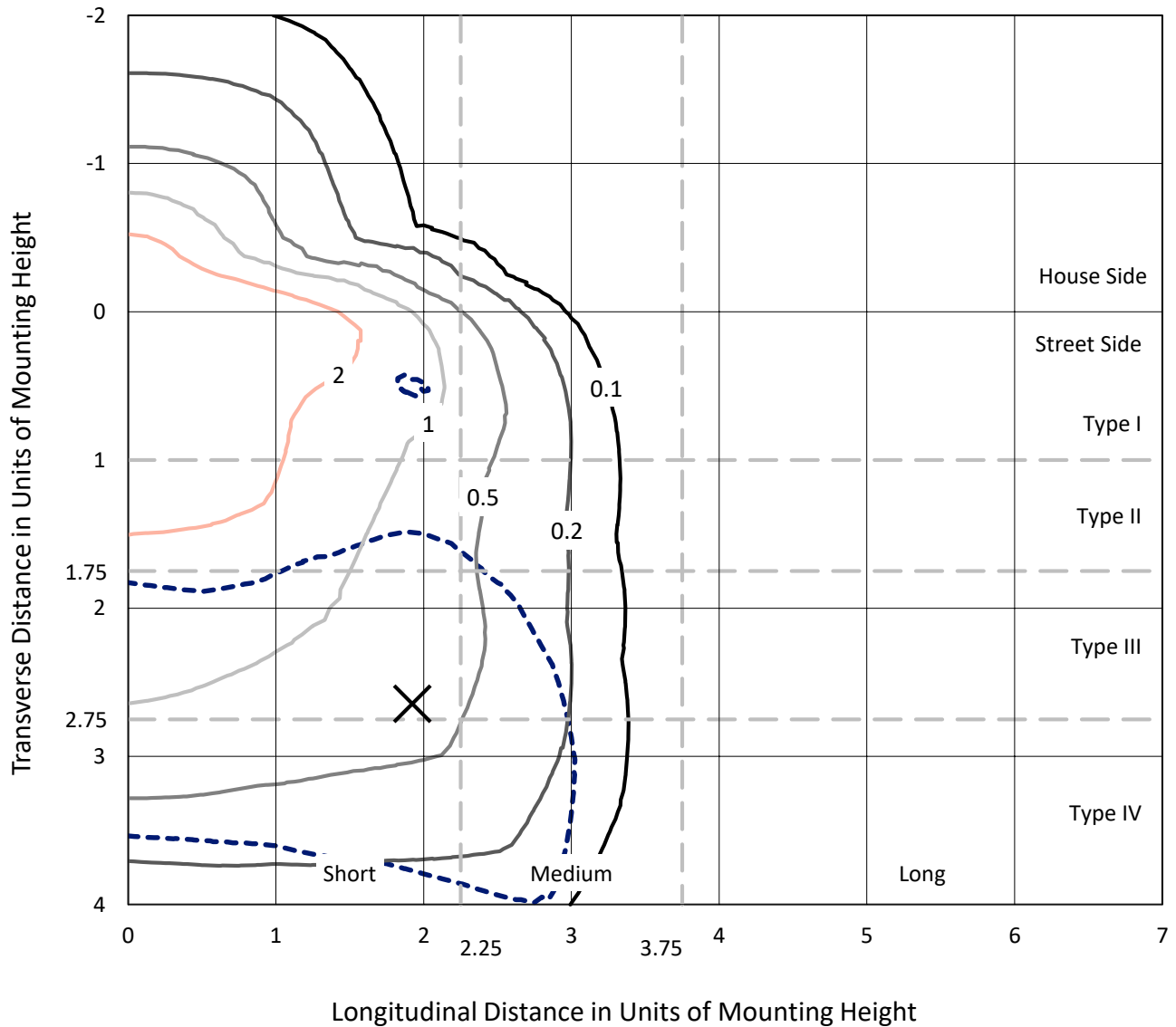
Input Watts (W): 162
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

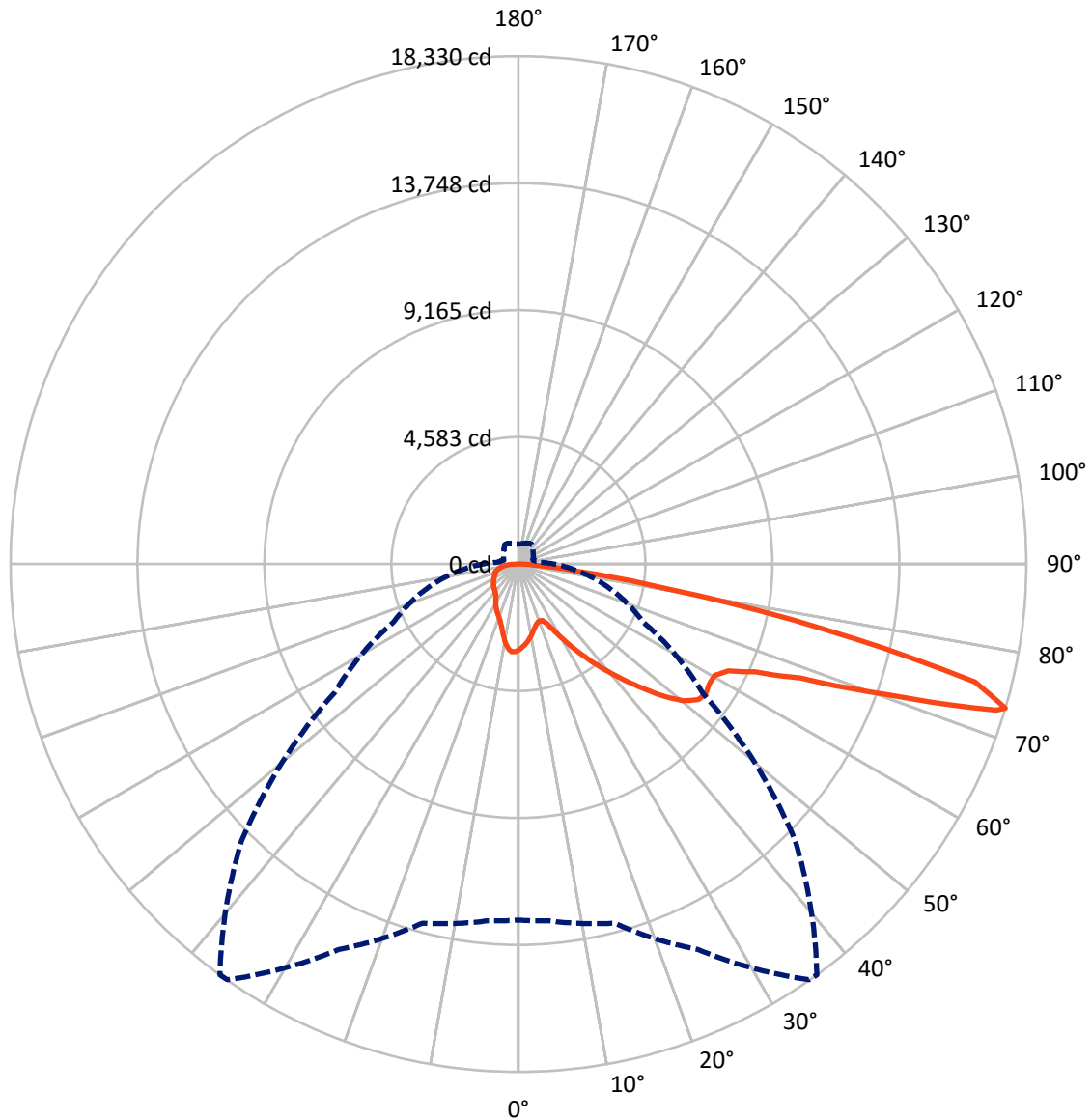
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5 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 | 3938.8 | 0.0 | 3938.8 |
| | % Fixture | 19.3 | 0.0 | 19.3 |
| Street Side | Lumens | 16487.5 | 0.0 | 16487.5 |
| | % Fixture | 80.7 | 0.0 | 80.7 |
| Total | Lumens | 20426.3 | 0.0 | 20426.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 281.0 | 1.4 |
| 10°-20° | 705.8 | 3.5 |
| 20°-30° | 1131.6 | 5.5 |
| 30°-40° | 1871.7 | 9.2 |
| 40°-50° | 2896.3 | 14.2 |
| 50°-60° | 3877.3 | 19.0 |
| 60°-70° | 5064.9 | 24.8 |
| 70°-80° | 4137.2 | 20.3 |
| 80°-90° | 460.5 | 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° | 20426.3 | 100.0 |
| 0°-180° | 20426.3 | 100.0 |



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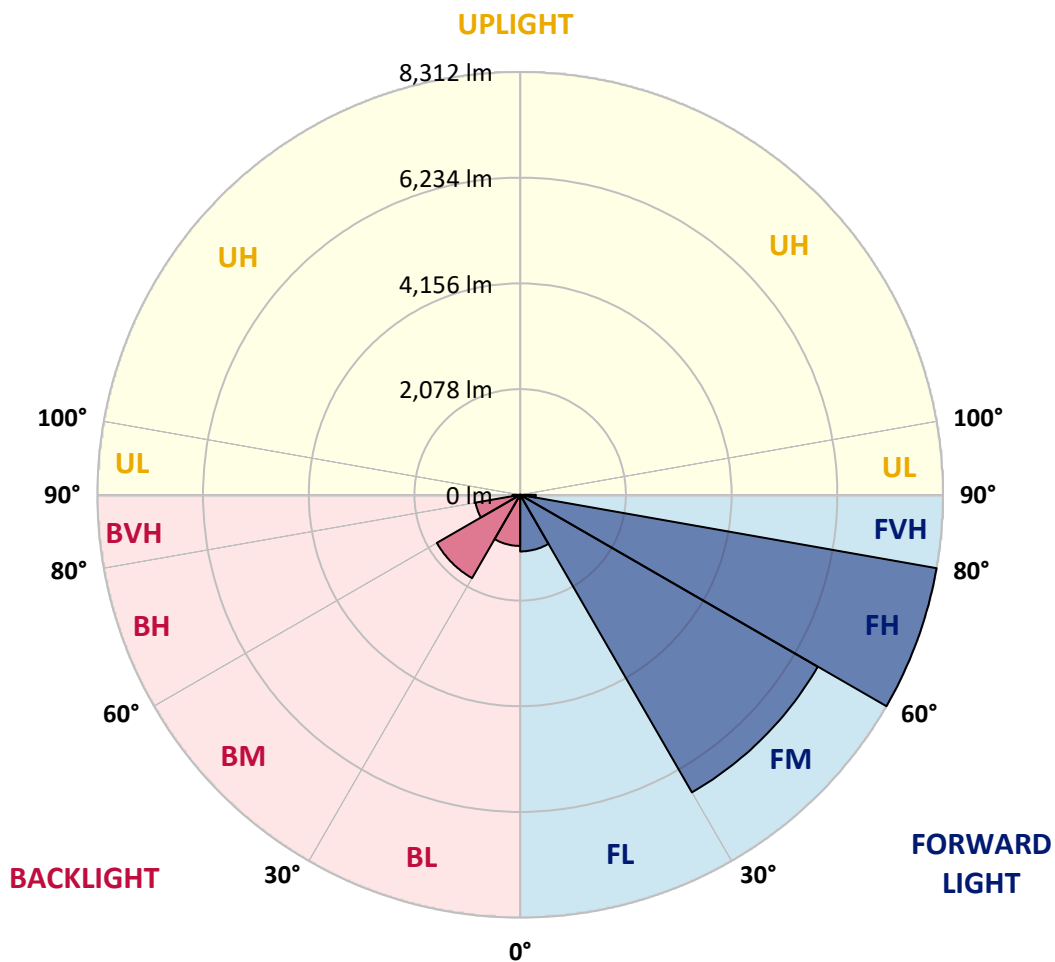
CATALOG NUMBER: NAV-AF-05-D-UNV-T4FT-600

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 1113.0 | 5.4 | | | |
| FM (30°-60°) | 6753.6 | 33.1 | | | |
| FH (60°-80°) | 8312.0 | 40.7 | | | G4/12000 |
| FVH (80°-90°) | 308.8 | 1.5 | | | G3/500 |
| BL (0°-30°) | 1005.4 | 4.9 | B3/2500 | | |
| BM (30°-60°) | 1891.6 | 9.3 | B2/2500 | | |
| BH (60°-80°) | 890.1 | 4.4 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 151.7 | 0.7 | | | G2/225 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 36° | 45° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| 0° | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 |
| 2.5° | 2975.9 | 2983.6 | 2985.0 | 2994.1 | 2994.1 | 2992.7 | 2996.6 | 3012.2 | 3020.1 | 3038.2 | 3053.7 |
| 5° | 2829.3 | 2838.3 | 2842.2 | 2857.8 | 2877.3 | 2878.6 | 2892.8 | 2922.7 | 2951.2 | 2991.4 | 3025.2 |
| 7.5° | 2664.4 | 2674.8 | 2685.1 | 2717.6 | 2746.2 | 2748.8 | 2776.0 | 2824.1 | 2861.7 | 2911.0 | 2972.0 |
| 10° | 2504.8 | 2507.4 | 2517.8 | 2559.3 | 2597.0 | 2600.9 | 2639.7 | 2694.2 | 2744.9 | 2813.6 | 2882.5 |
| 12.5° | 2373.7 | 2381.5 | 2378.9 | 2410.1 | 2442.5 | 2445.1 | 2497.0 | 2565.8 | 2639.7 | 2717.6 | 2799.4 |
| 15° | 2328.2 | 2327.0 | 2299.7 | 2298.5 | 2312.7 | 2315.3 | 2365.9 | 2446.4 | 2529.5 | 2625.5 | 2730.6 |
| 17.5° | 2359.4 | 2349.0 | 2277.7 | 2233.5 | 2224.4 | 2227.1 | 2264.7 | 2352.9 | 2441.2 | 2551.5 | 2677.4 |
| 20° | 2530.8 | 2490.5 | 2323.1 | 2216.6 | 2186.9 | 2186.9 | 2208.9 | 2280.3 | 2377.6 | 2506.1 | 2664.4 |
| 22.5° | 2937.0 | 2874.7 | 2517.8 | 2328.2 | 2223.2 | 2212.7 | 2195.9 | 2250.4 | 2358.1 | 2512.6 | 2717.6 |
| 25° | 3448.3 | 3418.4 | 2874.7 | 2625.5 | 2408.7 | 2375.0 | 2263.4 | 2282.8 | 2398.4 | 2582.6 | 2862.9 |
| 27.5° | 3922.0 | 3870.1 | 3343.2 | 3057.6 | 2751.3 | 2699.5 | 2463.3 | 2384.1 | 2494.4 | 2712.5 | 3073.3 |
| 30° | 4198.4 | 4163.4 | 3824.6 | 3552.1 | 3187.4 | 3121.2 | 2782.5 | 2584.0 | 2665.7 | 2926.6 | 3371.7 |
| 32.5° | 4499.6 | 4478.8 | 4307.4 | 4059.6 | 3659.8 | 3583.3 | 3195.2 | 2909.7 | 2927.9 | 3210.8 | 3731.2 |
| 35° | 4791.5 | 4818.8 | 4721.4 | 4539.8 | 4168.6 | 4097.2 | 3749.4 | 3335.3 | 3251.0 | 3530.1 | 4115.3 |
| 37.5° | 5142.0 | 5148.4 | 5087.4 | 4969.3 | 4703.3 | 4644.9 | 4358.1 | 3789.6 | 3602.7 | 3870.1 | 4486.6 |
| 40° | 5841.5 | 5739.0 | 5500.1 | 5406.7 | 5248.4 | 5212.0 | 4885.0 | 4206.2 | 3929.8 | 4219.2 | 4836.9 |
| 42.5° | 6598.1 | 6438.5 | 6064.7 | 5911.5 | 5847.9 | 5814.2 | 5323.6 | 4483.9 | 4236.0 | 4568.3 | 5180.8 |
| 45° | 7208.0 | 7078.3 | 6712.3 | 6522.8 | 6530.6 | 6476.1 | 5706.5 | 4731.9 | 4568.3 | 4918.8 | 5565.1 |
| 47.5° | 7808.9 | 7592.2 | 7182.1 | 7154.8 | 7245.7 | 7165.3 | 6072.4 | 4979.7 | 4914.9 | 5300.3 | 5949.2 |
| 50° | 7847.9 | 7650.6 | 7484.5 | 7702.5 | 7858.3 | 7758.4 | 6404.7 | 5304.2 | 5274.3 | 5762.3 | 6444.9 |
| 52.5° | 7374.1 | 7345.6 | 7598.7 | 7966.0 | 8224.2 | 8134.7 | 6676.0 | 5637.7 | 5641.6 | 6339.8 | 7048.4 |
| 55° | 7201.6 | 7165.3 | 7468.9 | 7920.6 | 8269.6 | 8216.4 | 6878.4 | 6014.0 | 6049.1 | 7040.7 | 7696.1 |
| 57.5° | 7492.3 | 7401.5 | 7461.1 | 7834.9 | 8163.2 | 8132.0 | 7088.6 | 6432.0 | 6495.5 | 7847.9 | 8294.3 |
| 60° | 8394.2 | 8208.7 | 7892.0 | 7962.1 | 8167.1 | 8148.9 | 7389.8 | 6897.9 | 7004.3 | 8688.8 | 8673.3 |
| 62.5° | 9745.2 | 9535.0 | 8890.1 | 8578.6 | 8533.1 | 8498.1 | 7886.8 | 7470.2 | 7523.4 | 9296.3 | 8452.6 |
| 65° | 11227.4 | 11001.5 | 10234.5 | 9724.5 | 9457.2 | 9381.9 | 8688.8 | 8160.7 | 7827.1 | 9294.9 | 7593.5 |
| 67.5° | 12891.2 | 12652.4 | 11888.0 | 11401.3 | 11111.9 | 10983.4 | 9990.5 | 8718.7 | 7728.5 | 8508.5 | 6076.3 |
| 70° | 14595.3 | 14368.1 | 14017.7 | 14187.7 | 14314.9 | 14118.9 | 12041.2 | 8904.3 | 7019.9 | 6670.8 | 4080.3 |
| 72.5° | 13690.7 | 13672.5 | 13938.5 | 15550.4 | 18002.0 | 18040.9 | 14089.1 | 8380.0 | 5423.6 | 3964.9 | 2175.1 |
| 73° | 12850.9 | 12927.5 | 13420.7 | 15349.3 | 18317.4 | 18330.4 | 14129.3 | 8108.7 | 4979.7 | 3415.8 | 1910.4 |
| 75° | 6657.8 | 7176.9 | 9006.9 | 12446.0 | 16961.1 | 17022.1 | 12455.1 | 6138.6 | 2968.1 | 1897.4 | 1287.4 |
| 77.5° | 1783.2 | 1759.9 | 2901.9 | 6063.3 | 11307.8 | 11227.4 | 7870.0 | 2972.0 | 1422.4 | 1190.1 | 903.3 |
| 80° | 611.3 | 619.1 | 987.7 | 2218.0 | 5278.2 | 5466.3 | 3415.8 | 1296.5 | 935.7 | 829.3 | 639.9 |
| 82.5° | 311.5 | 321.8 | 516.5 | 943.5 | 2207.6 | 2160.9 | 1099.3 | 763.1 | 626.9 | 503.6 | 358.2 |
| 85° | 166.1 | 171.3 | 284.2 | 489.3 | 809.9 | 818.9 | 386.8 | 407.5 | 398.4 | 285.5 | 176.5 |
| 87.5° | 81.7 | 84.4 | 136.3 | 215.4 | 299.8 | 289.4 | 134.9 | 176.5 | 196.0 | 160.9 | 97.4 |
| 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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CATALOG NUMBER: NAV-AF-05-D-UNV-T4FT-600

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 | 3094.0 |
| 2.5° | 3073.3 | 3073.3 | 3090.1 | 3118.7 | 3139.4 | 3158.9 | 3171.9 | 3192.6 | 3204.3 | 3203.0 | 3201.7 |
| 5° | 3052.5 | 3065.5 | 3099.1 | 3134.2 | 3157.5 | 3173.2 | 3173.2 | 3182.2 | 3182.2 | 3178.3 | 3173.2 |
| 7.5° | 3004.4 | 3026.5 | 3075.8 | 3107.0 | 3113.5 | 3096.6 | 3062.8 | 3036.8 | 3004.4 | 2987.5 | 2981.1 |
| 10° | 2927.9 | 2956.4 | 3018.7 | 3032.9 | 2999.3 | 2939.6 | 2857.8 | 2787.7 | 2725.4 | 2696.9 | 2687.8 |
| 12.5° | 2852.6 | 2890.2 | 2948.7 | 2926.6 | 2846.2 | 2729.3 | 2603.4 | 2507.4 | 2437.3 | 2410.1 | 2401.0 |
| 15° | 2790.3 | 2835.7 | 2881.1 | 2812.4 | 2672.2 | 2510.0 | 2371.1 | 2281.6 | 2228.4 | 2207.6 | 2202.4 |
| 17.5° | 2748.8 | 2802.0 | 2817.5 | 2689.0 | 2494.4 | 2312.7 | 2189.4 | 2131.0 | 2107.7 | 2098.6 | 2095.9 |
| 20° | 2751.3 | 2811.1 | 2773.4 | 2569.7 | 2323.1 | 2140.1 | 2058.4 | 2041.5 | 2041.5 | 2041.5 | 2040.2 |
| 22.5° | 2822.7 | 2874.7 | 2755.2 | 2458.0 | 2158.2 | 1994.8 | 1959.7 | 1974.0 | 1984.3 | 1984.3 | 1983.1 |
| 25° | 2970.6 | 2999.3 | 2768.2 | 2350.3 | 2003.9 | 1868.8 | 1870.2 | 1897.4 | 1906.5 | 1906.5 | 1903.9 |
| 27.5° | 3196.5 | 3173.2 | 2791.6 | 2231.0 | 1852.0 | 1754.7 | 1772.8 | 1797.4 | 1804.0 | 1800.1 | 1798.8 |
| 30° | 3479.5 | 3386.0 | 2811.1 | 2090.8 | 1709.2 | 1648.2 | 1663.8 | 1678.0 | 1672.8 | 1663.8 | 1662.5 |
| 32.5° | 3796.1 | 3602.7 | 2799.4 | 1933.8 | 1583.3 | 1537.9 | 1547.0 | 1554.8 | 1547.0 | 1524.9 | 1524.9 |
| 35° | 4110.2 | 3798.7 | 2735.8 | 1762.4 | 1483.4 | 1431.5 | 1430.2 | 1454.8 | 1453.5 | 1427.6 | 1428.9 |
| 37.5° | 4385.3 | 3953.1 | 2612.5 | 1605.4 | 1397.8 | 1353.6 | 1358.8 | 1374.3 | 1382.2 | 1347.1 | 1343.2 |
| 40° | 4625.4 | 4059.6 | 2438.6 | 1471.7 | 1328.9 | 1331.6 | 1317.3 | 1292.6 | 1283.5 | 1267.9 | 1265.4 |
| 42.5° | 4851.2 | 4133.5 | 2254.3 | 1360.1 | 1293.9 | 1323.8 | 1275.7 | 1217.3 | 1192.7 | 1207.0 | 1216.1 |
| 45° | 5073.1 | 4216.6 | 2076.5 | 1267.9 | 1249.8 | 1300.4 | 1234.2 | 1169.3 | 1140.8 | 1147.2 | 1156.3 |
| 47.5° | 5344.4 | 4332.1 | 1862.4 | 1169.3 | 1182.3 | 1257.6 | 1208.3 | 1138.1 | 1095.4 | 1069.4 | 1061.6 |
| 50° | 5701.3 | 4499.6 | 1584.7 | 1062.9 | 1110.9 | 1210.9 | 1186.2 | 1092.7 | 1046.1 | 994.1 | 981.1 |
| 52.5° | 6147.7 | 4657.8 | 1304.3 | 977.2 | 1052.5 | 1170.7 | 1149.9 | 1053.8 | 996.8 | 934.5 | 924.0 |
| 55° | 6592.9 | 4679.9 | 1062.9 | 903.3 | 986.3 | 1116.1 | 1105.7 | 1022.6 | 942.2 | 891.6 | 881.2 |
| 57.5° | 6904.4 | 4471.0 | 900.7 | 841.0 | 922.7 | 1048.6 | 1065.5 | 985.0 | 896.8 | 857.8 | 851.4 |
| 60° | 6909.5 | 3971.3 | 802.1 | 799.4 | 874.7 | 990.2 | 1024.0 | 940.9 | 868.3 | 842.3 | 837.1 |
| 62.5° | 6360.6 | 3200.4 | 738.5 | 768.3 | 839.6 | 942.2 | 992.9 | 916.3 | 861.7 | 851.4 | 846.2 |
| 65° | 5331.4 | 2364.7 | 687.8 | 739.8 | 807.2 | 901.9 | 966.9 | 908.5 | 859.2 | 855.3 | 851.4 |
| 67.5° | 3936.3 | 1621.0 | 645.0 | 703.4 | 770.9 | 860.4 | 942.2 | 896.8 | 843.6 | 859.2 | 854.0 |
| 70° | 2476.3 | 1082.4 | 604.8 | 661.8 | 722.9 | 812.4 | 909.8 | 876.1 | 824.1 | 815.0 | 798.1 |
| 72.5° | 1397.8 | 782.6 | 556.8 | 608.7 | 660.6 | 748.8 | 865.6 | 841.0 | 780.0 | 743.7 | 726.8 |
| 73° | 1262.7 | 741.0 | 545.1 | 595.7 | 646.3 | 735.9 | 855.3 | 830.6 | 767.0 | 726.8 | 711.2 |
| 75° | 924.0 | 606.1 | 491.8 | 542.5 | 586.7 | 676.2 | 806.0 | 778.7 | 709.9 | 661.8 | 651.5 |
| 77.5° | 669.6 | 467.2 | 423.1 | 468.5 | 507.5 | 593.1 | 731.9 | 700.8 | 633.3 | 607.3 | 597.0 |
| 80° | 482.8 | 354.4 | 350.4 | 394.6 | 428.3 | 515.3 | 652.8 | 620.3 | 555.5 | 632.1 | 615.2 |
| 82.5° | 288.2 | 227.1 | 257.0 | 306.3 | 341.4 | 432.2 | 567.1 | 529.5 | 467.2 | 472.4 | 402.3 |
| 85° | 137.6 | 128.5 | 159.6 | 201.1 | 225.9 | 295.9 | 472.4 | 442.5 | 373.8 | 306.3 | 299.8 |
| 87.5° | 61.0 | 58.4 | 76.6 | 89.5 | 120.7 | 177.8 | 323.2 | 286.8 | 271.3 | 162.2 | 127.2 |
| 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)