

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: P196148

Luminaire Tested: **NAV-AF-02-D-UNV-SL3-1200**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P196148  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24262)  
Test Lab: INNOVATION CENTER P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: LUMARK  
Catalog Number: NAV-AF-02-D-UNV-SL3-1200  
Description: NAVION ROADWAY AND AREA LUMINAIRE  
(2) 70 CRI, 4000K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III  
SPILL LIGHT ELIMINATOR OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13651.3 lumens  
Efficiency: N/A  
Efficacy: 105.8 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')  
IES Classification: Type III - Medium - Non-Cutoff  
BUG Rating: B2 - U0 - G3

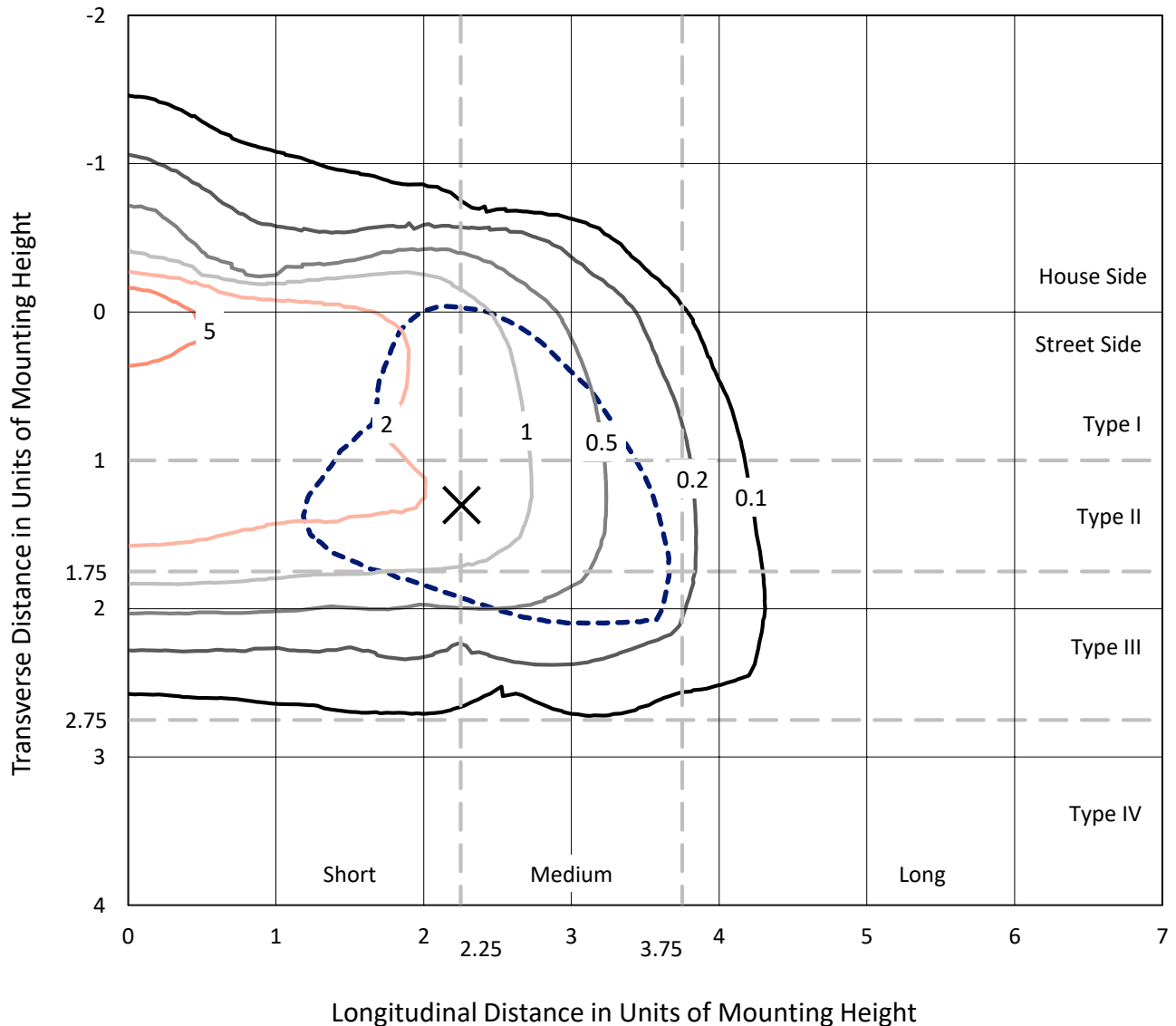
Input Watts (W): 129  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



REPORT NUMBER: P196148  
 CATALOG NUMBER: NAV-AF-02-D-UNV-SL3-1200

### Iso-Footcandle Lines of Horizontal Illumination

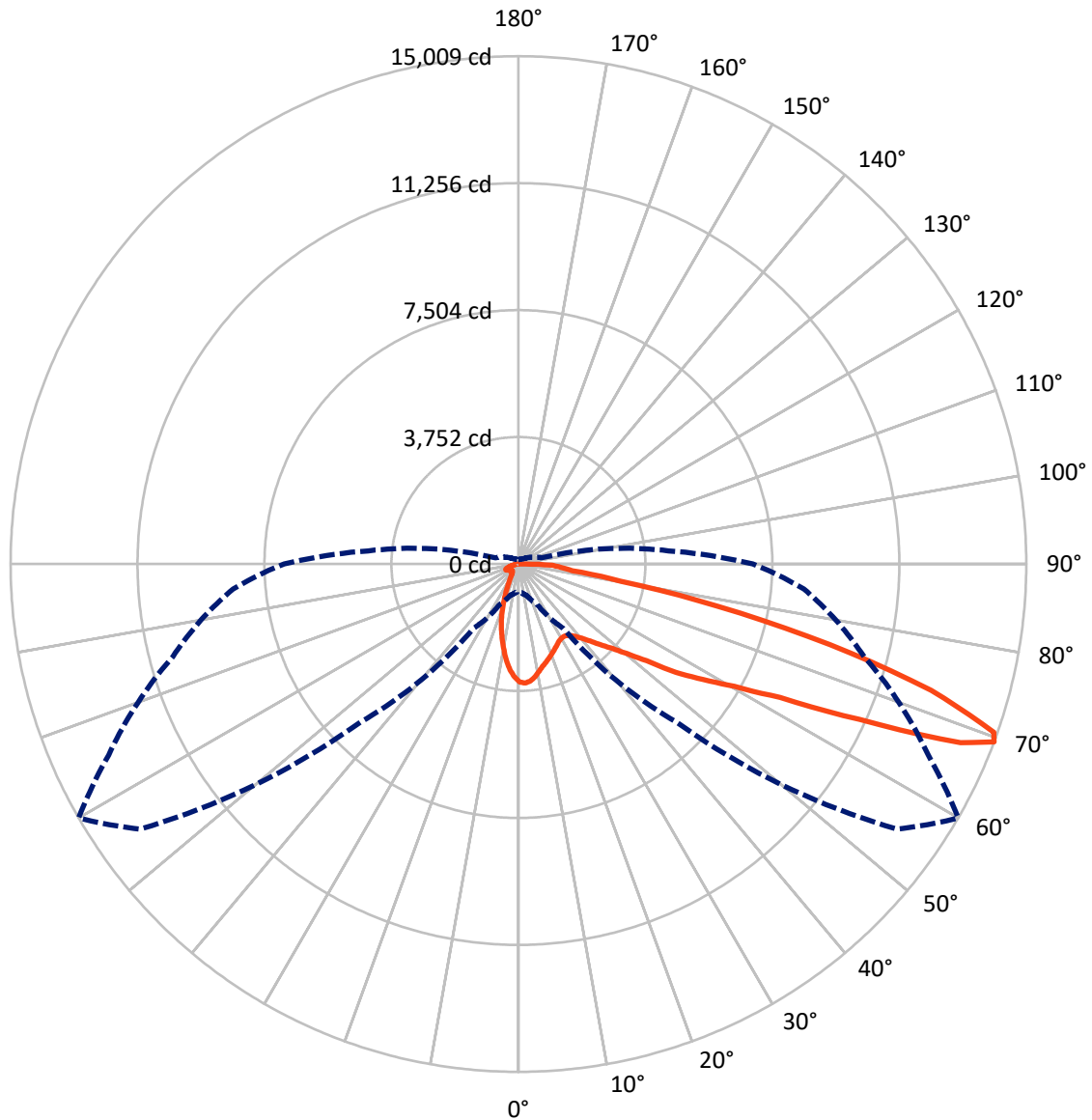
× Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 8.7 fc  
 Type III - Medium - Non-Cutoff

REPORT NUMBER: P196148  
CATALOG NUMBER: NAV-AF-02-D-UNV-SL3-1200

### Luminous Intensity Polar Plot



— Vertical Plane Through 60-Deg Lateral      - - - Horizontal Cone Through 69-Deg Vertical

REPORT NUMBER: P196148

CATALOG NUMBER: NAV-AF-02-D-UNV-SL3-1200

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 1947.1   | 0.0    | 1947.1  |
|                    | % Fixture | 14.3     | 0.0    | 14.3    |
| <b>Street Side</b> | Lumens    | 11704.2  | 0.0    | 11704.2 |
|                    | % Fixture | 85.7     | 0.0    | 85.7    |
| <b>Total</b>       | Lumens    | 13651.3  | 0.0    | 13651.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 295.5   | 2.2       |
| 10°-20°   | 632.7   | 4.6       |
| 20°-30°   | 807.1   | 5.9       |
| 30°-40°   | 1110.7  | 8.1       |
| 40°-50°   | 1799.0  | 13.2      |
| 50°-60°   | 2823.5  | 20.7      |
| 60°-70°   | 3764.3  | 27.6      |
| 70°-80°   | 2093.8  | 15.3      |
| 80°-90°   | 324.7   | 2.4       |
| 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°    | 13651.3 | 100.0     |
| 0°-180°   | 13651.3 | 100.0     |

**Coefficient of Utilization**



REPORT NUMBER: P196148

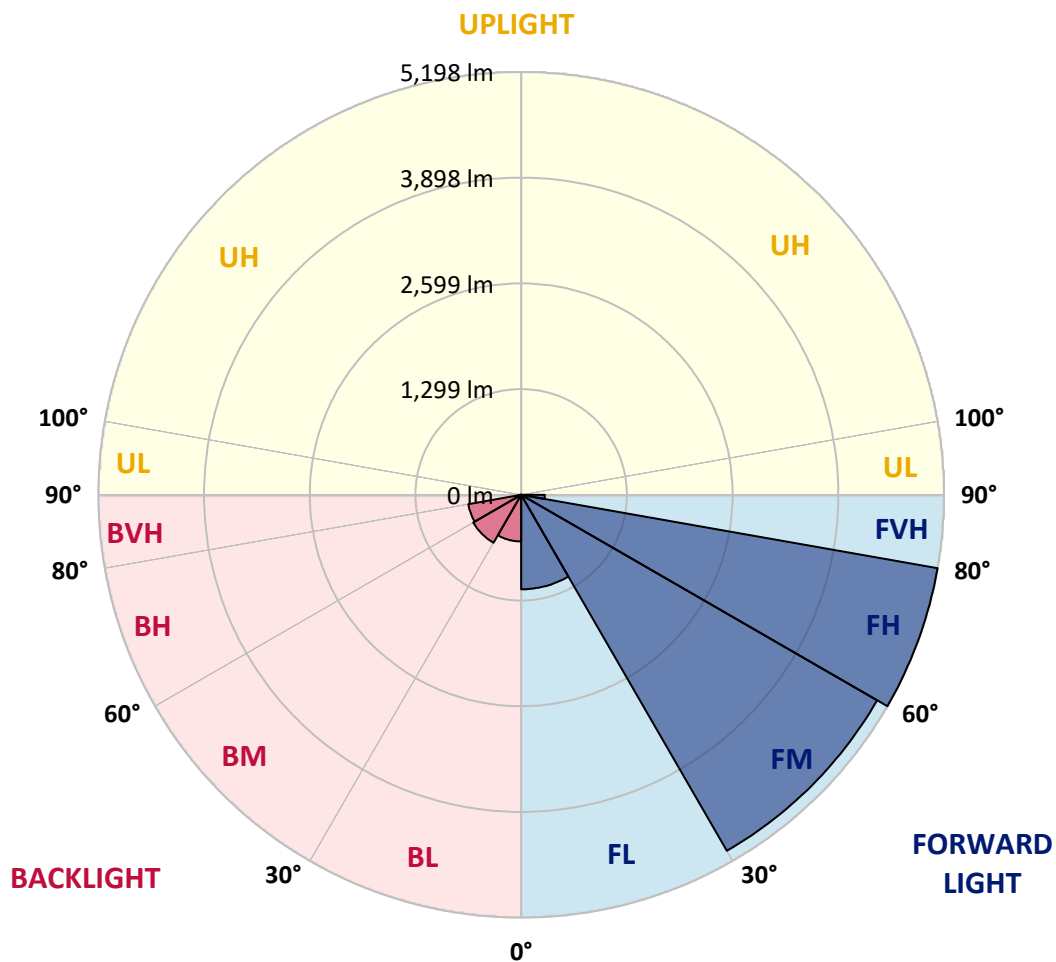
CATALOG NUMBER: NAV-AF-02-D-UNV-SL3-1200

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 1161.5 | 8.5       |                         |      |         |
| FM   | (30°-60°)   | 5053.0 | 37.0      |                         |      |         |
| FH   | (60°-80°)   | 5197.9 | 38.1      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 291.8  | 2.1       |                         |      | G3/500  |
| BL   | (0°-30°)    | 573.8  | 4.2       | B2/1000                 |      |         |
| BM   | (30°-60°)   | 680.2  | 5.0       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 660.2  | 4.8       | B2/1000                 |      | G2/1000 |
| BVH  | (80°-90°)   | 32.9   | 0.2       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B2-U0-G3**

Type III Medium





REPORT NUMBER: P196148  
 CATALOG NUMBER: NAV-AF-02-D-UNV-SL3-1200

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°     | 60°     | 65°     | 75°     | 85°    |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|--------|
| 0°    | 3483.1 | 3483.1 | 3483.1 | 3483.1 | 3483.1 | 3483.1 | 3483.1  | 3483.1  | 3483.1  | 3483.1  | 3483.1 |
| 2.5°  | 3575.9 | 3585.5 | 3585.5 | 3577.7 | 3573.4 | 3547.9 | 3533.1  | 3522.5  | 3504.2  | 3470.1  | 3439.4 |
| 5°    | 3448.2 | 3466.6 | 3474.5 | 3477.9 | 3500.6 | 3492.8 | 3493.7  | 3486.6  | 3470.9  | 3434.1  | 3384.2 |
| 7.5°  | 3213.5 | 3217.1 | 3231.1 | 3254.7 | 3309.9 | 3348.3 | 3379.8  | 3386.0  | 3382.5  | 3355.4  | 3285.3 |
| 10°   | 2982.4 | 2988.6 | 3005.2 | 3045.4 | 3098.0 | 3153.1 | 3221.5  | 3249.4  | 3270.5  | 3261.7  | 3173.3 |
| 12.5° | 2790.7 | 2791.6 | 2809.9 | 2856.4 | 2915.0 | 2984.2 | 3077.0  | 3120.7  | 3170.6  | 3190.8  | 3091.9 |
| 15°   | 2606.1 | 2618.2 | 2635.8 | 2691.8 | 2764.5 | 2852.0 | 2958.8  | 3019.2  | 3084.9  | 3142.6  | 3028.9 |
| 17.5° | 2465.9 | 2475.6 | 2486.1 | 2532.5 | 2616.5 | 2726.0 | 2858.1  | 2922.9  | 3009.6  | 3098.0  | 2964.1 |
| 20°   | 2388.9 | 2392.5 | 2384.6 | 2407.3 | 2478.2 | 2596.4 | 2749.6  | 2827.5  | 2930.8  | 3055.1  | 2897.5 |
| 22.5° | 2373.1 | 2373.1 | 2344.3 | 2339.9 | 2371.4 | 2471.2 | 2637.6  | 2732.9  | 2859.0  | 3025.4  | 2838.0 |
| 25°   | 2446.7 | 2441.5 | 2387.2 | 2337.2 | 2325.9 | 2376.7 | 2530.8  | 2648.0  | 2797.8  | 3024.5  | 2793.4 |
| 27.5° | 2585.9 | 2578.9 | 2511.4 | 2427.5 | 2354.8 | 2332.9 | 2448.4  | 2568.4  | 2749.6  | 3054.2  | 2770.6 |
| 30°   | 2759.2 | 2756.5 | 2688.3 | 2583.3 | 2463.4 | 2350.4 | 2416.1  | 2527.2  | 2717.2  | 3109.4  | 2769.7 |
| 32.5° | 2949.2 | 2936.9 | 2895.0 | 2789.9 | 2634.0 | 2447.6 | 2435.3  | 2529.0  | 2708.5  | 3189.9  | 2789.9 |
| 35°   | 3151.4 | 3142.6 | 3132.2 | 3026.2 | 2851.2 | 2619.2 | 2520.2  | 2589.4  | 2751.3  | 3302.0  | 2846.8 |
| 37.5° | 3408.8 | 3399.2 | 3416.7 | 3301.1 | 3109.4 | 2844.1 | 2663.8  | 2710.2  | 2838.9  | 3464.7  | 2952.6 |
| 40°   | 3866.5 | 3838.6 | 3789.5 | 3611.8 | 3410.5 | 3119.9 | 2871.3  | 2878.3  | 2988.6  | 3682.7  | 3122.6 |
| 42.5° | 4618.5 | 4528.4 | 4285.9 | 3959.3 | 3728.2 | 3440.3 | 3141.8  | 3108.5  | 3195.2  | 3970.8  | 3369.4 |
| 45°   | 5372.2 | 5270.8 | 4861.1 | 4338.4 | 4057.4 | 3784.3 | 3476.2  | 3396.5  | 3452.6  | 4306.0  | 3687.1 |
| 47.5° | 5859.0 | 5809.0 | 5346.9 | 4717.4 | 4402.4 | 4159.0 | 3858.7  | 3727.4  | 3767.6  | 4685.9  | 4079.3 |
| 50°   | 6001.7 | 5958.8 | 5595.4 | 5014.2 | 4728.0 | 4611.6 | 4332.3  | 4158.1  | 4165.0  | 5129.8  | 4549.4 |
| 52.5° | 5894.9 | 5877.4 | 5636.7 | 5198.0 | 5027.4 | 5088.7 | 4987.9  | 4745.5  | 4687.7  | 5616.5  | 5058.9 |
| 55°   | 5752.2 | 5758.3 | 5665.5 | 5382.8 | 5332.0 | 5533.3 | 5845.9  | 5650.6  | 5405.5  | 6123.4  | 5589.3 |
| 57.5° | 5303.1 | 5307.5 | 5550.8 | 5734.7 | 5913.3 | 6156.6 | 6513.7  | 6431.5  | 6146.1  | 6670.5  | 6183.7 |
| 60°   | 4270.1 | 4304.3 | 4846.1 | 5662.0 | 6577.7 | 7384.8 | 7472.3  | 7330.5  | 6934.0  | 7300.7  | 6956.7 |
| 62.5° | 3050.7 | 3081.3 | 3709.0 | 4915.3 | 6499.7 | 8774.9 | 9242.4  | 8678.6  | 8002.7  | 8243.6  | 8044.0 |
| 65°   | 1602.9 | 1597.5 | 2083.4 | 3396.5 | 5474.6 | 9097.0 | 12031.3 | 11071.9 | 9803.4  | 9539.9  | 9094.4 |
| 67.5° | 895.5  | 924.4  | 1112.7 | 1713.1 | 3568.1 | 8006.3 | 13812.7 | 14095.4 | 12307.1 | 10568.5 | 9048.9 |
| 69°   | 828.1  | 837.8  | 963.8  | 1324.4 | 2325.9 | 6605.7 | 13659.6 | 15008.5 | 13362.8 | 10572.9 | 8465.8 |
| 70°   | 804.4  | 815.0  | 929.7  | 1220.3 | 1953.8 | 5412.5 | 13102.0 | 14901.7 | 13619.3 | 10338.4 | 7935.4 |
| 72.5° | 721.3  | 735.3  | 846.5  | 1096.9 | 1646.6 | 2789.9 | 10553.7 | 12754.4 | 12336.8 | 9035.7  | 6153.0 |
| 75°   | 615.4  | 639.0  | 807.1  | 1088.9 | 1559.9 | 1773.5 | 7038.1  | 9502.3  | 9181.9  | 6462.1  | 3491.0 |
| 77.5° | 254.7  | 257.4  | 352.8  | 797.5  | 1636.9 | 1697.4 | 3782.6  | 6019.1  | 5328.4  | 2833.7  | 1051.4 |
| 80°   | 177.7  | 174.2  | 175.9  | 232.8  | 1320.9 | 1708.7 | 1940.7  | 3061.2  | 2379.3  | 747.6   | 491.9  |
| 82.5° | 149.7  | 147.9  | 155.0  | 146.2  | 447.3  | 1939.0 | 1623.0  | 1595.8  | 1120.5  | 402.6   | 234.6  |
| 85°   | 98.9   | 96.3   | 126.9  | 133.1  | 212.7  | 1539.8 | 1745.6  | 1254.4  | 835.1   | 215.3   | 99.8   |
| 87.5° | 48.2   | 49.0   | 72.6   | 90.1   | 112.9  | 487.6  | 1672.0  | 991.9   | 645.2   | 93.7    | 40.3   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0     | 0.0     | 0.0     | 0.0     | 0.0    |



REPORT NUMBER: P196148  
 CATALOG NUMBER: NAV-AF-02-D-UNV-SL3-1200

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 3483.1 | 3483.1 | 3483.1 | 3483.1 | 3483.1 | 3483.1 | 3483.1 | 3483.1 | 3483.1 | 3483.1 | 3483.1 |
| 2.5°  | 3427.2 | 3400.9 | 3377.3 | 3347.5 | 3324.7 | 3305.5 | 3279.2 | 3278.4 | 3274.0 | 3280.1 | 3281.8 |
| 5°    | 3351.0 | 3307.2 | 3240.7 | 3166.2 | 3113.8 | 3044.6 | 2977.2 | 2954.4 | 2929.0 | 2926.5 | 2934.3 |
| 7.5°  | 3236.3 | 3168.0 | 3054.2 | 2940.5 | 2826.6 | 2710.2 | 2599.9 | 2543.9 | 2489.6 | 2473.0 | 2480.9 |
| 10°   | 3108.5 | 3021.8 | 2847.6 | 2662.0 | 2501.8 | 2328.5 | 2160.5 | 2051.9 | 1953.0 | 1911.0 | 1921.5 |
| 12.5° | 3008.7 | 2898.4 | 2653.3 | 2412.5 | 2172.7 | 1924.1 | 1702.6 | 1488.2 | 1326.3 | 1253.5 | 1257.9 |
| 15°   | 2922.9 | 2782.0 | 2471.2 | 2150.9 | 1850.6 | 1510.1 | 1202.8 | 954.2  | 812.3  | 759.8  | 758.1  |
| 17.5° | 2830.1 | 2659.5 | 2281.3 | 1907.5 | 1518.0 | 1096.9 | 805.4  | 658.3  | 602.3  | 584.7  | 584.7  |
| 20°   | 2731.2 | 2533.3 | 2082.5 | 1642.2 | 1167.8 | 766.0  | 605.8  | 548.9  | 527.8  | 522.6  | 521.7  |
| 22.5° | 2639.3 | 2410.0 | 1882.9 | 1359.5 | 844.8  | 581.2  | 515.6  | 493.7  | 490.2  | 494.6  | 494.6  |
| 25°   | 2566.7 | 2301.4 | 1680.7 | 1061.8 | 614.5  | 486.7  | 458.7  | 456.0  | 469.2  | 485.0  | 487.6  |
| 27.5° | 2512.4 | 2204.3 | 1481.1 | 775.6  | 483.2  | 423.7  | 414.1  | 425.4  | 456.0  | 487.6  | 493.7  |
| 30°   | 2474.7 | 2121.1 | 1242.2 | 557.6  | 402.6  | 371.1  | 375.5  | 395.7  | 442.1  | 490.2  | 503.4  |
| 32.5° | 2458.0 | 2053.7 | 1001.5 | 428.1  | 344.0  | 326.5  | 337.9  | 364.2  | 412.4  | 460.4  | 476.2  |
| 35°   | 2473.8 | 2004.7 | 779.1  | 355.4  | 301.2  | 288.0  | 301.2  | 328.3  | 359.8  | 383.4  | 393.0  |
| 37.5° | 2530.8 | 1987.1 | 586.6  | 315.2  | 273.1  | 260.0  | 270.5  | 288.9  | 302.9  | 311.6  | 316.0  |
| 40°   | 2650.7 | 2005.5 | 459.6  | 294.1  | 257.4  | 242.4  | 245.1  | 253.9  | 263.5  | 270.5  | 271.4  |
| 42.5° | 2841.6 | 2066.0 | 408.8  | 286.2  | 247.8  | 228.5  | 224.1  | 230.3  | 240.7  | 250.3  | 252.2  |
| 45°   | 3095.3 | 2166.6 | 403.6  | 288.9  | 243.4  | 217.1  | 208.4  | 214.5  | 228.5  | 244.3  | 246.8  |
| 47.5° | 3423.6 | 2325.9 | 428.1  | 302.9  | 246.0  | 210.9  | 197.8  | 204.0  | 222.4  | 243.4  | 246.8  |
| 50°   | 3812.3 | 2546.5 | 473.6  | 323.9  | 258.2  | 210.9  | 193.4  | 198.8  | 218.0  | 241.6  | 245.1  |
| 52.5° | 4270.1 | 2853.7 | 520.9  | 344.9  | 275.8  | 218.8  | 195.2  | 194.4  | 211.9  | 233.7  | 238.1  |
| 55°   | 4775.2 | 3235.4 | 566.4  | 363.2  | 285.4  | 229.3  | 199.6  | 189.0  | 203.1  | 220.5  | 224.1  |
| 57.5° | 5369.7 | 3758.0 | 646.0  | 380.8  | 290.6  | 237.2  | 204.8  | 183.8  | 191.7  | 204.0  | 206.6  |
| 60°   | 6175.9 | 4525.7 | 801.0  | 410.5  | 300.2  | 240.7  | 205.7  | 178.6  | 177.7  | 186.5  | 187.3  |
| 62.5° | 7227.2 | 5424.8 | 948.9  | 445.6  | 319.5  | 241.6  | 202.2  | 175.0  | 166.3  | 169.0  | 169.0  |
| 65°   | 7974.8 | 5755.6 | 906.0  | 475.4  | 337.1  | 240.7  | 198.8  | 172.5  | 157.5  | 153.2  | 153.2  |
| 67.5° | 7549.4 | 5084.3 | 769.5  | 483.2  | 338.8  | 231.1  | 190.9  | 166.3  | 149.7  | 139.2  | 139.2  |
| 69°   | 6924.4 | 4456.6 | 706.4  | 469.2  | 324.8  | 219.7  | 182.1  | 160.2  | 144.4  | 132.2  | 132.2  |
| 70°   | 6414.8 | 3981.2 | 667.9  | 452.6  | 308.1  | 210.1  | 174.2  | 154.1  | 139.2  | 128.7  | 127.8  |
| 72.5° | 4789.3 | 2656.8 | 570.7  | 390.5  | 253.0  | 177.7  | 152.3  | 137.5  | 125.2  | 118.2  | 118.2  |
| 75°   | 2527.2 | 1331.5 | 467.5  | 318.6  | 195.2  | 141.8  | 125.2  | 115.6  | 108.5  | 107.7  | 106.8  |
| 77.5° | 828.1  | 602.3  | 336.1  | 239.9  | 143.5  | 110.3  | 99.8   | 93.7   | 92.8   | 96.3   | 96.3   |
| 80°   | 447.3  | 359.8  | 216.3  | 161.9  | 99.8   | 82.2   | 77.0   | 76.2   | 78.8   | 84.1   | 84.1   |
| 82.5° | 217.1  | 177.7  | 128.7  | 99.8   | 68.2   | 60.4   | 60.4   | 61.3   | 64.8   | 70.9   | 70.9   |
| 85°   | 93.7   | 84.1   | 74.4   | 56.1   | 42.0   | 37.6   | 42.9   | 47.3   | 49.9   | 54.3   | 56.1   |
| 87.5° | 44.6   | 39.4   | 34.2   | 21.9   | 18.4   | 19.2   | 22.7   | 28.0   | 33.2   | 36.7   | 37.6   |
| 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)