

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: P197150

Luminaire Tested: **NAV-AF-02-D-UNV-SL4-8030**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P197150  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24284)  
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-SL4-8030  
Description: NAVION ROADWAY AND AREA LUMINAIRE  
(2) 80 CRI, 3000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV  
SPILL LIGHT ELIMINATOR OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9482 lumens  
Efficiency: N/A  
Efficacy: 83.9 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')  
IES Classification: Type IV - Short - Non-Cutoff  
BUG Rating: B1 - U0 - G3

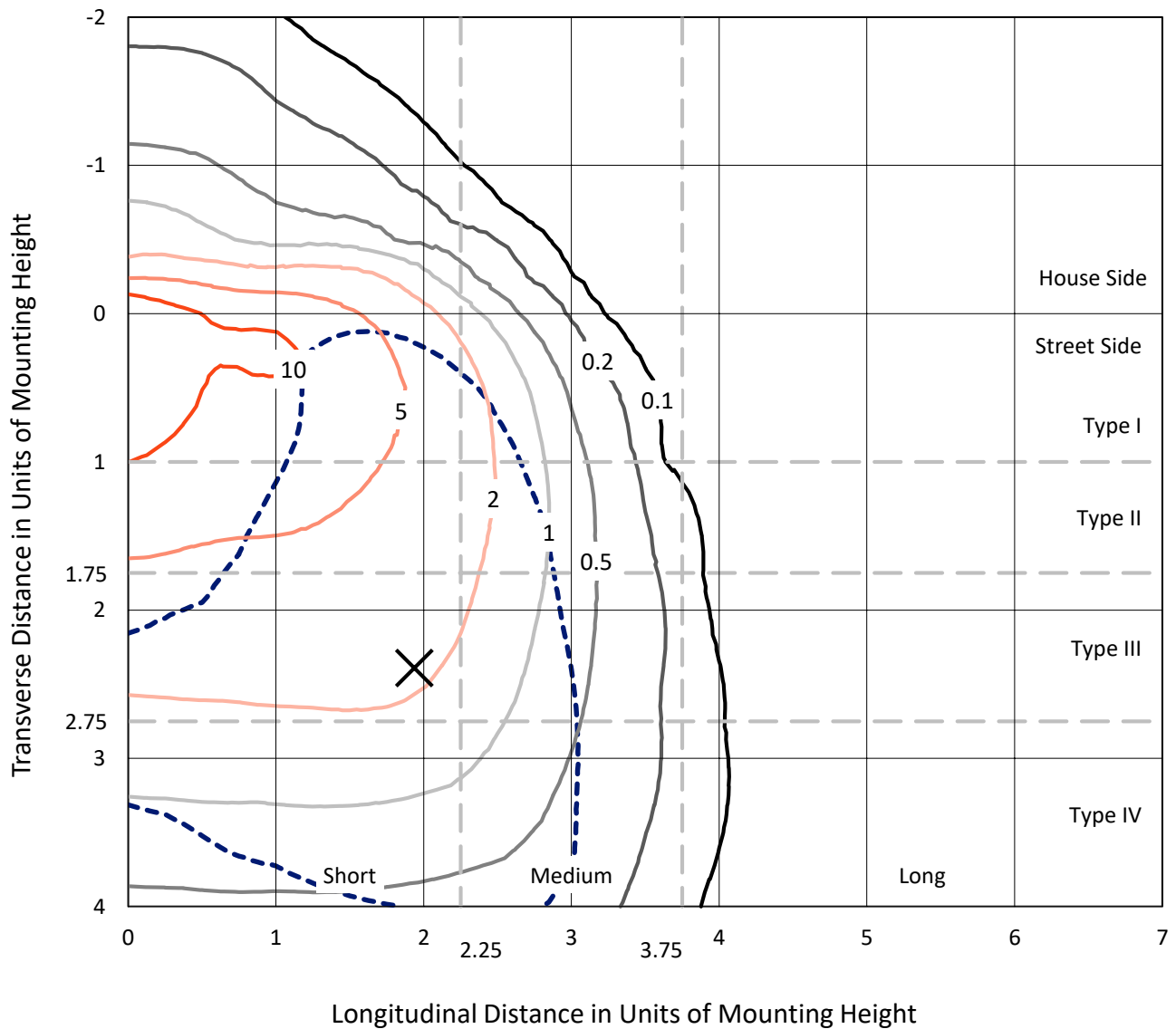
Input Watts (W): 113  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Iso-Footcandle Lines of Horizontal Illumination

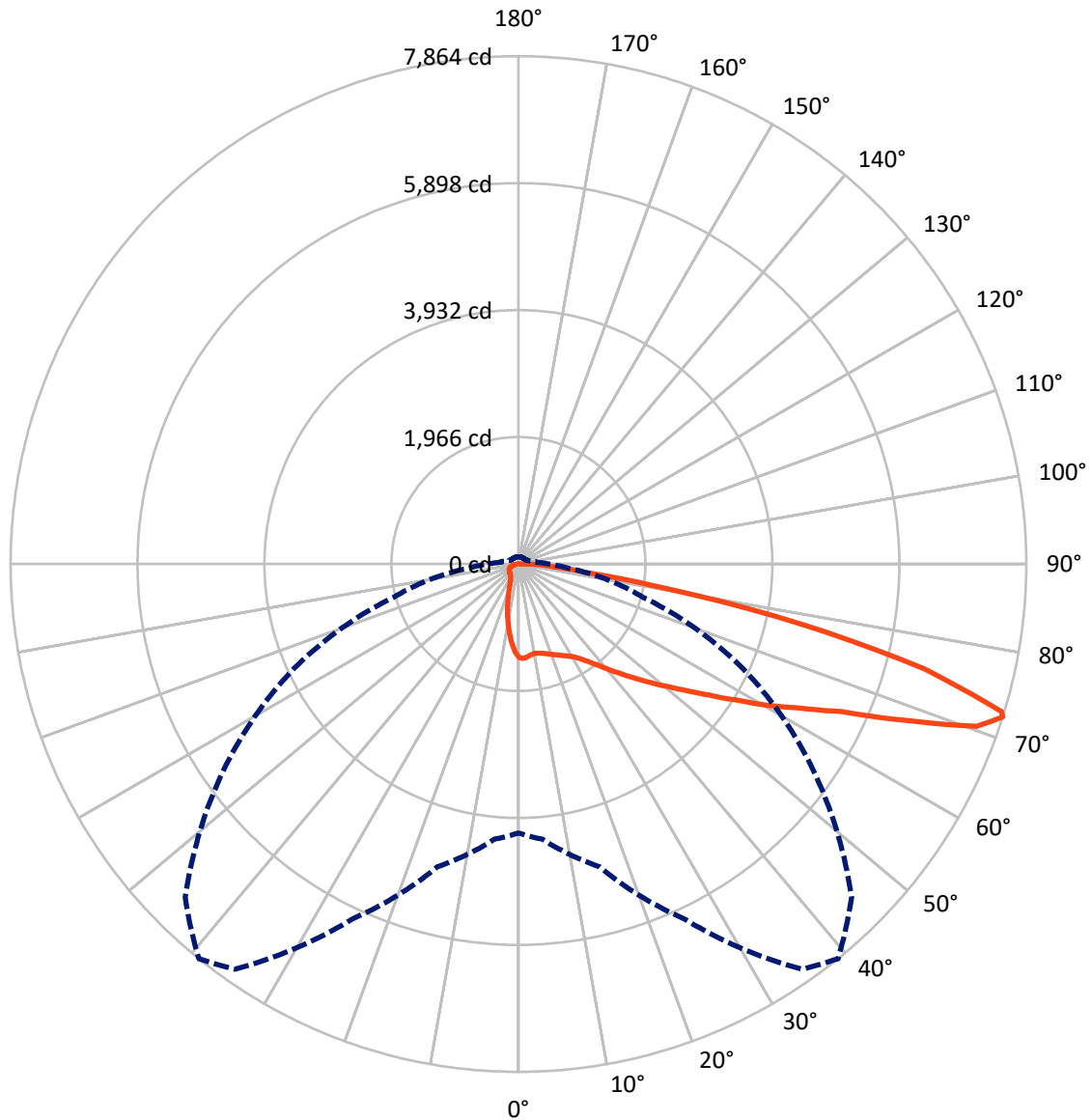
× Max cd  
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 14.5 fc  
 Type IV - Short - Non-Cutoff

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CATALOG NUMBER: NAV-AF-02-D-UNV-SL4-8030

### Luminous Intensity Polar Plot



— Vertical Plane Through 39-Deg Lateral    - - - Horizontal Cone Through 72-Deg Vertical

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CATALOG NUMBER: NAV-AF-02-D-UNV-SL4-8030

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1087.2   | 0.0    | 1087.2 |
|                    | % Fixture | 11.5     | 0.0    | 11.5   |
| <b>Street Side</b> | Lumens    | 8394.8   | 0.0    | 8394.8 |
|                    | % Fixture | 88.5     | 0.0    | 88.5   |
| <b>Total</b>       | Lumens    | 9482.0   | 0.0    | 9482.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 124.4  | 1.3       |
| 10°-20°   | 312.7  | 3.3       |
| 20°-30°   | 487.3  | 5.1       |
| 30°-40°   | 750.3  | 7.9       |
| 40°-50°   | 1223.1 | 12.9      |
| 50°-60°   | 1900.6 | 20.0      |
| 60°-70°   | 2543.9 | 26.8      |
| 70°-80°   | 1829.5 | 19.3      |
| 80°-90°   | 310.1  | 3.3       |
| 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°    | 9482.0 | 100.0     |
| 0°-180°   | 9482.0 | 100.0     |



REPORT NUMBER: P197150

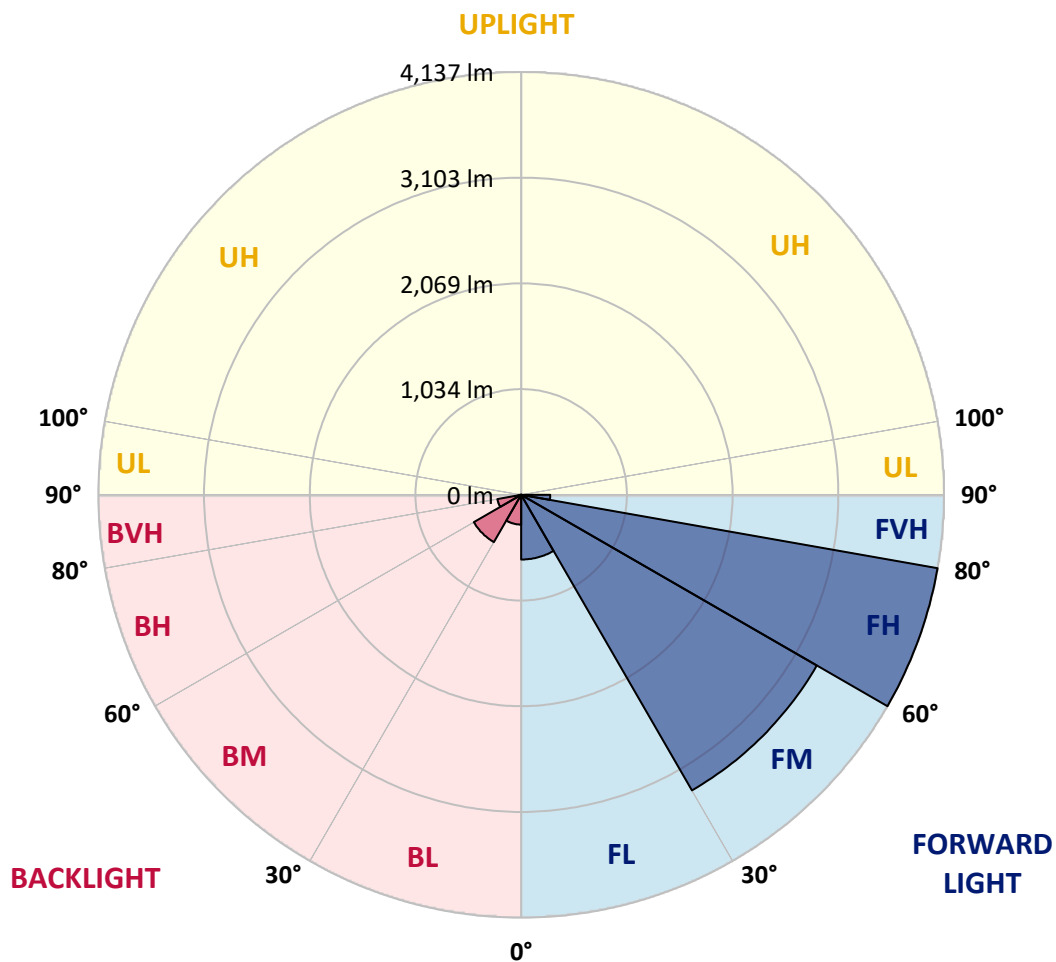
CATALOG NUMBER: NAV-AF-02-D-UNV-SL4-8030

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 633.4  | 6.7       |                         |      |         |
| FM   | (30°-60°)   | 3339.7 | 35.2      |                         |      |         |
| FH   | (60°-80°)   | 4137.1 | 43.6      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 284.5  | 3.0       |                         |      | G3/500  |
| BL   | (0°-30°)    | 291.1  | 3.1       | B1/500                  |      |         |
| BM   | (30°-60°)   | 534.3  | 5.6       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 236.2  | 2.5       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 25.6   | 0.3       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G3**

Type IV Short





REPORT NUMBER: P197150

CATALOG NUMBER: NAV-AF-02-D-UNV-SL4-8030

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 39°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 |
| 2.5°  | 1479.3 | 1479.9 | 1478.0 | 1472.3 | 1467.2 | 1464.6 | 1460.2 | 1452.5 | 1442.3 | 1435.3 | 1429.6 |
| 5°    | 1465.3 | 1467.2 | 1465.9 | 1456.3 | 1447.4 | 1442.3 | 1435.3 | 1424.5 | 1411.2 | 1405.4 | 1392.1 |
| 7.5°  | 1454.4 | 1455.7 | 1451.9 | 1441.1 | 1423.9 | 1417.5 | 1404.8 | 1390.8 | 1378.7 | 1370.4 | 1354.5 |
| 10°   | 1446.8 | 1448.1 | 1444.9 | 1434.1 | 1415.0 | 1407.3 | 1392.1 | 1376.8 | 1360.9 | 1350.7 | 1332.9 |
| 12.5° | 1436.0 | 1438.5 | 1438.5 | 1433.4 | 1420.7 | 1415.6 | 1400.3 | 1383.8 | 1369.1 | 1358.3 | 1336.0 |
| 15°   | 1434.1 | 1437.3 | 1443.0 | 1442.3 | 1438.5 | 1434.7 | 1422.6 | 1406.1 | 1393.3 | 1380.6 | 1353.2 |
| 17.5° | 1450.0 | 1457.0 | 1468.4 | 1472.3 | 1469.7 | 1461.4 | 1447.4 | 1432.2 | 1418.2 | 1406.1 | 1372.3 |
| 20°   | 1490.1 | 1493.9 | 1511.1 | 1518.7 | 1506.0 | 1493.9 | 1475.4 | 1455.7 | 1443.0 | 1433.4 | 1390.1 |
| 22.5° | 1550.6 | 1555.6 | 1569.6 | 1570.3 | 1543.5 | 1528.9 | 1505.4 | 1481.2 | 1469.1 | 1465.3 | 1414.3 |
| 25°   | 1647.3 | 1646.0 | 1649.8 | 1633.9 | 1585.6 | 1568.4 | 1539.7 | 1511.7 | 1503.4 | 1511.1 | 1450.0 |
| 27.5° | 1763.1 | 1760.0 | 1747.9 | 1706.5 | 1633.3 | 1611.0 | 1576.6 | 1551.8 | 1551.8 | 1569.6 | 1498.4 |
| 30°   | 1896.8 | 1893.6 | 1854.2 | 1784.8 | 1689.9 | 1664.5 | 1628.2 | 1602.1 | 1615.5 | 1649.8 | 1563.9 |
| 32.5° | 2038.1 | 2026.7 | 1971.3 | 1878.4 | 1770.8 | 1742.8 | 1707.8 | 1681.0 | 1706.5 | 1765.1 | 1658.1 |
| 35°   | 2171.2 | 2164.8 | 2096.7 | 1986.6 | 1875.2 | 1851.6 | 1827.4 | 1794.3 | 1835.1 | 1926.1 | 1791.2 |
| 37.5° | 2308.6 | 2303.5 | 2220.2 | 2103.0 | 2002.5 | 1986.6 | 1966.2 | 1943.3 | 2008.8 | 2128.5 | 1971.3 |
| 40°   | 2462.0 | 2451.9 | 2346.8 | 2229.7 | 2150.8 | 2143.1 | 2132.3 | 2126.0 | 2231.6 | 2409.8 | 2199.2 |
| 42.5° | 2635.8 | 2616.1 | 2480.5 | 2369.1 | 2312.5 | 2318.8 | 2313.1 | 2338.6 | 2500.2 | 2734.5 | 2470.3 |
| 45°   | 2834.4 | 2794.9 | 2613.5 | 2517.4 | 2491.3 | 2516.8 | 2528.9 | 2593.8 | 2817.9 | 3109.4 | 2773.3 |
| 47.5° | 3020.3 | 2969.3 | 2759.3 | 2678.5 | 2693.1 | 2737.0 | 2771.4 | 2886.0 | 3166.0 | 3479.8 | 3082.6 |
| 50°   | 3191.5 | 3134.2 | 2915.2 | 2845.2 | 2916.5 | 2978.9 | 3050.2 | 3211.9 | 3536.5 | 3861.1 | 3366.5 |
| 52.5° | 3318.2 | 3276.8 | 3071.2 | 3027.3 | 3173.0 | 3255.8 | 3369.7 | 3574.0 | 3910.7 | 4224.6 | 3619.9 |
| 55°   | 3416.2 | 3393.9 | 3223.3 | 3236.0 | 3463.3 | 3581.7 | 3719.8 | 3954.7 | 4306.7 | 4550.4 | 3823.5 |
| 57.5° | 3529.5 | 3512.9 | 3397.1 | 3488.1 | 3823.5 | 3972.5 | 4135.4 | 4396.4 | 4683.5 | 4837.5 | 3983.3 |
| 60°   | 3649.1 | 3649.1 | 3590.6 | 3791.7 | 4274.2 | 4444.8 | 4607.1 | 4810.1 | 5059.0 | 5095.9 | 4048.2 |
| 62.5° | 3739.5 | 3763.1 | 3784.1 | 4115.1 | 4701.9 | 4913.9 | 5092.1 | 5286.9 | 5447.9 | 5223.2 | 3895.5 |
| 65°   | 3870.6 | 3920.9 | 4039.3 | 4488.7 | 5231.5 | 5509.0 | 5749.6 | 5913.2 | 5763.0 | 5122.0 | 3397.1 |
| 67.5° | 4096.0 | 4170.4 | 4422.5 | 5045.0 | 6042.4 | 6458.1 | 6691.7 | 6409.1 | 5701.3 | 4484.9 | 2602.1 |
| 70°   | 4299.0 | 4404.0 | 4835.0 | 5750.9 | 7096.5 | 7528.1 | 7420.5 | 6293.9 | 4965.5 | 3287.6 | 1600.8 |
| 72°   | 4164.1 | 4278.7 | 4854.1 | 6058.3 | 7659.8 | 7863.5 | 7296.4 | 5577.8 | 3836.9 | 2006.3 | 789.3  |
| 72.5° | 4075.6 | 4194.6 | 4792.3 | 6050.7 | 7675.1 | 7820.9 | 7123.9 | 5293.3 | 3483.0 | 1755.5 | 638.4  |
| 75°   | 3404.7 | 3506.6 | 4120.8 | 5362.6 | 6763.6 | 6496.3 | 5559.3 | 3425.7 | 1600.8 | 567.1  | 328.4  |
| 77.5° | 2223.3 | 2301.0 | 2841.4 | 3715.3 | 4737.6 | 4480.4 | 3383.7 | 1604.0 | 600.2  | 344.4  | 247.0  |
| 80°   | 1117.1 | 1172.5 | 1520.6 | 1953.5 | 2556.9 | 2352.6 | 1562.0 | 775.9  | 401.6  | 248.9  | 194.1  |
| 82.5° | 777.2  | 828.1  | 1047.1 | 997.4  | 1068.7 | 1034.3 | 734.5  | 647.3  | 300.4  | 157.2  | 101.8  |
| 85°   | 651.8  | 704.6  | 866.3  | 711.0  | 581.8  | 530.2  | 526.4  | 611.7  | 198.6  | 77.7   | 85.9   |
| 87.5° | 568.4  | 648.6  | 714.8  | 519.4  | 399.1  | 352.0  | 387.6  | 560.8  | 63.0   | 42.6   | 26.1   |
| 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: P197150

CATALOG NUMBER: NAV-AF-02-D-UNV-SL4-8030

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 | 1448.1 |
| 2.5°  | 1420.1 | 1418.2 | 1408.6 | 1394.0 | 1383.1 | 1376.1 | 1362.8 | 1362.1 | 1363.4 | 1352.0 | 1356.4 |
| 5°    | 1380.0 | 1372.3 | 1347.5 | 1313.8 | 1286.4 | 1260.3 | 1231.7 | 1222.1 | 1213.8 | 1196.6 | 1198.6 |
| 7.5°  | 1338.0 | 1324.6 | 1281.3 | 1225.9 | 1173.1 | 1124.7 | 1077.0 | 1053.4 | 1035.6 | 1013.3 | 1013.3 |
| 10°   | 1313.1 | 1292.1 | 1225.9 | 1145.1 | 1061.1 | 990.4  | 919.1  | 876.5  | 845.3  | 816.6  | 814.7  |
| 12.5° | 1311.9 | 1280.0 | 1187.7 | 1076.3 | 961.1  | 861.8  | 764.5  | 698.9  | 652.4  | 618.7  | 615.5  |
| 15°   | 1322.0 | 1277.5 | 1155.9 | 1012.1 | 866.9  | 737.7  | 617.4  | 534.0  | 474.8  | 437.3  | 433.5  |
| 17.5° | 1331.0 | 1274.3 | 1121.5 | 944.6  | 775.3  | 618.1  | 484.4  | 397.8  | 341.8  | 311.3  | 308.1  |
| 20°   | 1339.2 | 1267.3 | 1077.6 | 873.3  | 674.1  | 506.0  | 378.7  | 308.7  | 271.8  | 254.6  | 252.7  |
| 22.5° | 1351.3 | 1260.9 | 1031.8 | 793.1  | 574.8  | 411.8  | 312.5  | 262.2  | 242.5  | 234.2  | 233.0  |
| 25°   | 1371.1 | 1261.6 | 987.2  | 711.0  | 483.8  | 343.1  | 270.5  | 239.3  | 228.5  | 222.8  | 222.8  |
| 27.5° | 1399.7 | 1269.2 | 943.3  | 627.6  | 406.7  | 296.0  | 245.7  | 227.2  | 220.2  | 215.8  | 214.5  |
| 30°   | 1441.7 | 1283.2 | 896.8  | 548.7  | 345.6  | 263.5  | 231.1  | 219.6  | 213.9  | 210.0  | 209.4  |
| 32.5° | 1502.8 | 1308.0 | 847.8  | 476.7  | 299.2  | 240.6  | 220.2  | 213.2  | 208.8  | 205.6  | 205.0  |
| 35°   | 1593.8 | 1352.0 | 800.1  | 415.6  | 266.1  | 224.1  | 211.3  | 205.6  | 203.0  | 201.8  | 201.1  |
| 37.5° | 1727.5 | 1422.6 | 754.9  | 367.9  | 244.4  | 213.2  | 202.4  | 199.2  | 198.0  | 198.0  | 198.0  |
| 40°   | 1895.5 | 1515.5 | 714.2  | 334.2  | 232.3  | 205.0  | 196.0  | 193.5  | 193.5  | 194.1  | 194.1  |
| 42.5° | 2099.9 | 1632.0 | 679.2  | 311.3  | 225.3  | 199.2  | 191.6  | 190.3  | 189.7  | 189.7  | 190.3  |
| 45°   | 2337.3 | 1769.5 | 657.5  | 293.4  | 220.2  | 196.0  | 188.4  | 187.8  | 185.2  | 184.0  | 184.0  |
| 47.5° | 2576.0 | 1916.5 | 656.2  | 283.2  | 213.9  | 192.2  | 185.2  | 185.2  | 180.1  | 177.6  | 178.2  |
| 50°   | 2798.8 | 2048.3 | 670.3  | 280.7  | 210.0  | 186.5  | 182.0  | 182.7  | 175.7  | 172.5  | 171.9  |
| 52.5° | 2978.3 | 2148.9 | 687.4  | 283.9  | 210.0  | 181.4  | 176.3  | 179.5  | 171.9  | 168.0  | 167.4  |
| 55°   | 3117.0 | 2218.9 | 693.8  | 290.9  | 212.6  | 177.0  | 171.2  | 176.3  | 170.6  | 165.5  | 165.5  |
| 57.5° | 3216.3 | 2241.2 | 666.4  | 294.1  | 216.4  | 176.3  | 166.1  | 175.7  | 172.5  | 166.1  | 166.1  |
| 60°   | 3180.0 | 2112.0 | 564.6  | 282.0  | 215.8  | 175.0  | 162.3  | 177.0  | 178.9  | 171.9  | 171.9  |
| 62.5° | 2896.8 | 1767.0 | 453.2  | 254.6  | 205.0  | 170.6  | 157.9  | 175.7  | 183.3  | 180.8  | 179.5  |
| 65°   | 2358.3 | 1295.9 | 351.4  | 222.1  | 186.5  | 161.0  | 148.3  | 164.2  | 173.1  | 175.7  | 176.3  |
| 67.5° | 1661.9 | 820.5  | 273.1  | 189.0  | 163.6  | 147.0  | 137.5  | 145.1  | 148.3  | 149.6  | 152.1  |
| 70°   | 908.9  | 444.3  | 217.1  | 159.1  | 140.0  | 133.0  | 126.0  | 126.7  | 125.4  | 124.1  | 125.4  |
| 72°   | 456.4  | 290.3  | 183.3  | 138.1  | 124.1  | 119.7  | 116.5  | 114.6  | 114.6  | 112.7  | 113.3  |
| 72.5° | 392.7  | 269.9  | 177.0  | 133.0  | 120.3  | 116.5  | 113.9  | 112.0  | 111.4  | 110.1  | 110.8  |
| 75°   | 261.6  | 213.9  | 147.7  | 111.4  | 102.5  | 99.9   | 101.2  | 99.3   | 99.9   | 98.7   | 99.3   |
| 77.5° | 211.3  | 184.0  | 125.4  | 94.2   | 87.8   | 84.0   | 86.6   | 87.2   | 88.5   | 87.2   | 86.6   |
| 80°   | 177.0  | 156.6  | 105.0  | 77.7   | 73.2   | 70.0   | 71.3   | 75.7   | 76.4   | 72.6   | 71.9   |
| 82.5° | 114.6  | 126.0  | 82.7   | 60.5   | 56.0   | 54.7   | 57.9   | 62.4   | 63.7   | 58.6   | 57.3   |
| 85°   | 96.1   | 101.2  | 59.8   | 41.4   | 36.9   | 35.6   | 42.0   | 46.5   | 49.6   | 44.6   | 43.3   |
| 87.5° | 26.7   | 49.6   | 29.3   | 19.7   | 16.5   | 16.5   | 20.4   | 24.2   | 28.6   | 29.3   | 29.3   |
| 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)