

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: P196141

Luminaire Tested: **NAV-AF-01-D-UNV-SL3**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196141
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-01-D-UNV-SL3
Description: NAVION ROADWAY AND AREA LUMINAIRE
(1) 70 CRI, 4000K, 1050mA LIGHTSQUARE 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: 6242.1 lumens
Efficiency: N/A
Efficacy: 105.8 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Medium - Non-Cutoff
BUG Rating: B1 - U0 - G2

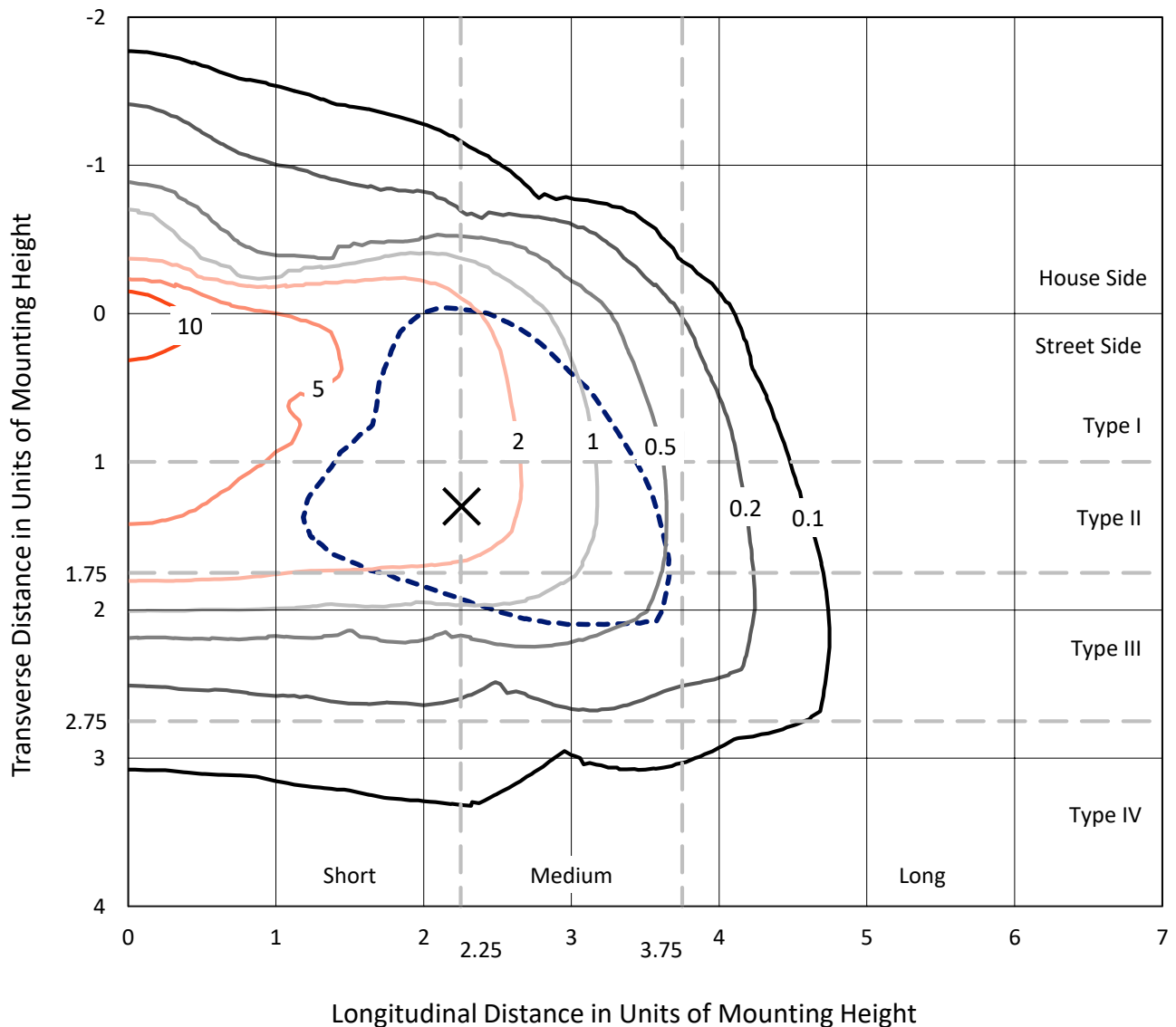
Input Watts (W): 59
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

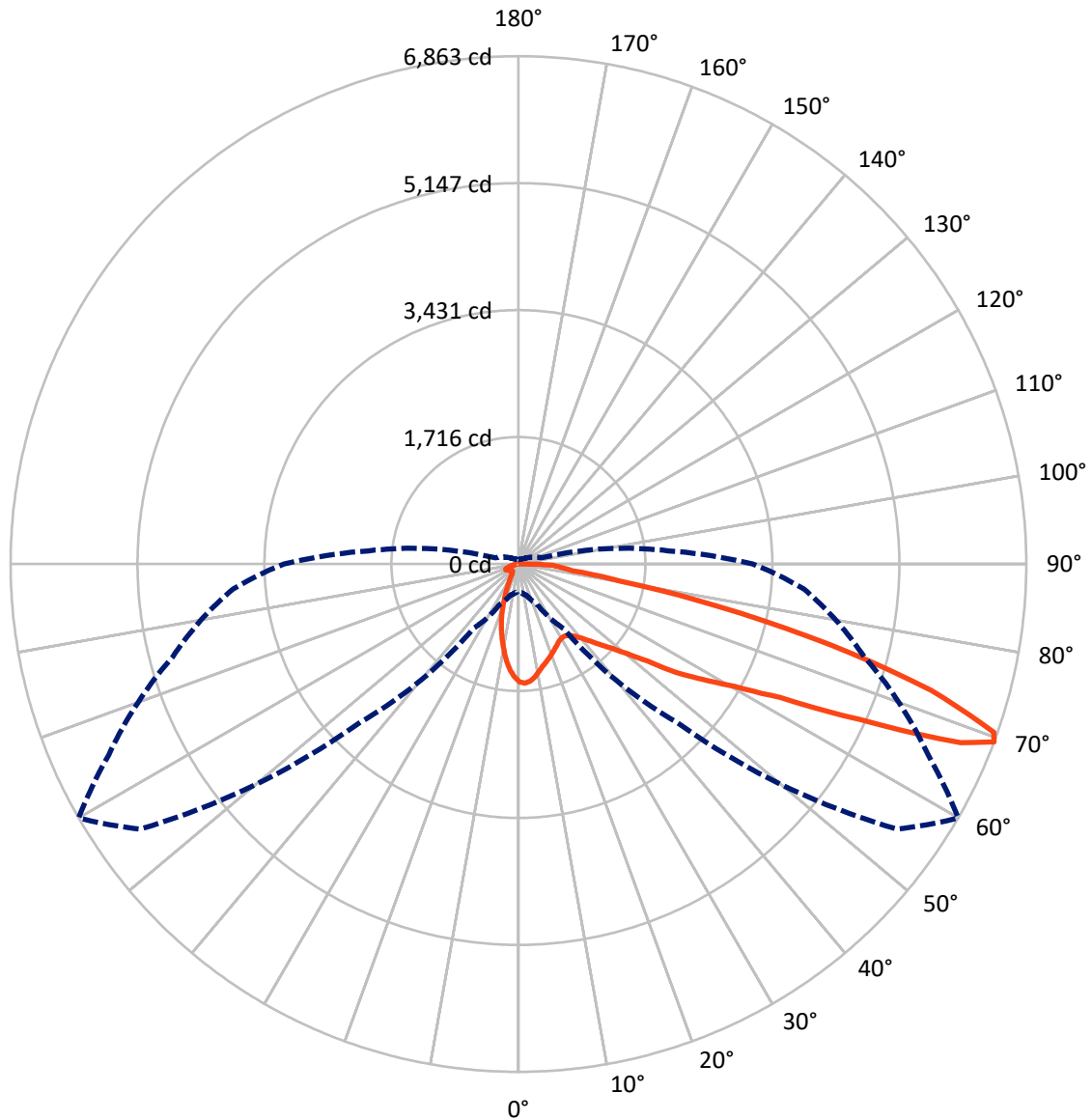
× Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 15.9 fc
 Type III - Medium - Non-Cutoff

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Luminous Intensity Polar Plot



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

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 890.3 | 0.0 | 890.3 |
| | % Fixture | 14.3 | 0.0 | 14.3 |
| Street Side | Lumens | 5351.7 | 0.0 | 5351.7 |
| | % Fixture | 85.7 | 0.0 | 85.7 |
| Total | Lumens | 6242.1 | 0.0 | 6242.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 135.1 | 2.2 |
| 10°-20° | 289.3 | 4.6 |
| 20°-30° | 369.1 | 5.9 |
| 30°-40° | 507.8 | 8.1 |
| 40°-50° | 822.6 | 13.2 |
| 50°-60° | 1291.1 | 20.7 |
| 60°-70° | 1721.2 | 27.6 |
| 70°-80° | 957.4 | 15.3 |
| 80°-90° | 148.5 | 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° | 6242.1 | 100.0 |
| 0°-180° | 6242.1 | 100.0 |



REPORT NUMBER: P196141

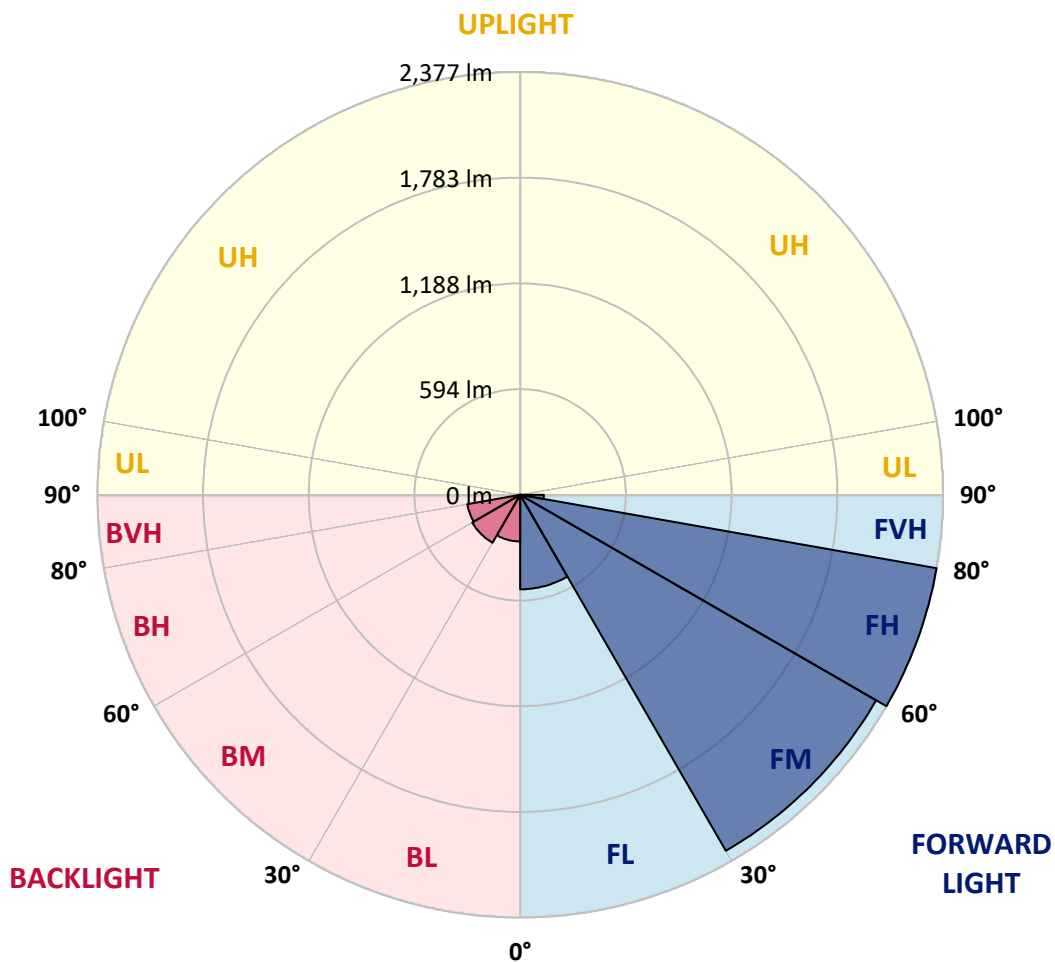
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 531.1 | 8.5 | | | |
| FM | (30°-60°) | 2310.5 | 37.0 | | | |
| FH | (60°-80°) | 2376.7 | 38.1 | | | G2/5000 |
| FVH | (80°-90°) | 133.4 | 2.1 | | | G2/225 |
| BL | (0°-30°) | 262.4 | 4.2 | B1/500 | | |
| BM | (30°-60°) | 311.0 | 5.0 | B1/1000 | | |
| BH | (60°-80°) | 301.9 | 4.8 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 15.0 | 0.2 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type III Medium





REPORT NUMBER: P196141

CATALOG NUMBER: NAV-AF-01-D-UNV-SL3

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 60° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 |
| 2.5° | 1635.1 | 1639.5 | 1639.5 | 1635.9 | 1633.9 | 1622.3 | 1615.4 | 1610.7 | 1602.2 | 1586.7 | 1572.7 |
| 5° | 1576.7 | 1585.1 | 1588.6 | 1590.3 | 1600.7 | 1597.0 | 1597.4 | 1594.3 | 1587.1 | 1570.2 | 1547.4 |
| 7.5° | 1469.4 | 1471.0 | 1477.4 | 1488.2 | 1513.5 | 1531.1 | 1545.5 | 1548.2 | 1546.6 | 1534.2 | 1502.2 |
| 10° | 1363.7 | 1366.6 | 1374.1 | 1392.5 | 1416.6 | 1441.7 | 1472.9 | 1485.8 | 1495.5 | 1491.4 | 1451.0 |
| 12.5° | 1276.0 | 1276.4 | 1284.8 | 1306.1 | 1332.9 | 1364.5 | 1407.0 | 1427.0 | 1449.8 | 1459.0 | 1413.7 |
| 15° | 1191.6 | 1197.2 | 1205.2 | 1230.8 | 1264.1 | 1304.1 | 1353.0 | 1380.6 | 1410.5 | 1436.9 | 1385.0 |
| 17.5° | 1127.6 | 1132.0 | 1136.8 | 1158.0 | 1196.4 | 1246.5 | 1306.9 | 1336.5 | 1376.2 | 1416.6 | 1355.3 |
| 20° | 1092.3 | 1093.9 | 1090.4 | 1100.7 | 1133.1 | 1187.2 | 1257.2 | 1292.9 | 1340.1 | 1396.9 | 1324.9 |
| 22.5° | 1085.1 | 1085.1 | 1072.0 | 1069.9 | 1084.3 | 1130.0 | 1206.1 | 1249.6 | 1307.3 | 1383.3 | 1297.7 |
| 25° | 1118.8 | 1116.3 | 1091.5 | 1068.7 | 1063.6 | 1086.8 | 1157.2 | 1210.9 | 1279.3 | 1382.9 | 1277.3 |
| 27.5° | 1182.4 | 1179.2 | 1148.4 | 1109.9 | 1076.8 | 1066.7 | 1119.5 | 1174.3 | 1257.2 | 1396.5 | 1266.8 |
| 30° | 1261.6 | 1260.5 | 1229.3 | 1181.2 | 1126.4 | 1074.7 | 1104.8 | 1155.6 | 1242.5 | 1421.8 | 1266.4 |
| 32.5° | 1348.6 | 1342.9 | 1323.7 | 1275.6 | 1204.4 | 1119.1 | 1113.6 | 1156.3 | 1238.5 | 1458.6 | 1275.6 |
| 35° | 1440.9 | 1436.9 | 1432.1 | 1383.7 | 1303.6 | 1197.6 | 1152.4 | 1184.0 | 1258.0 | 1509.8 | 1301.7 |
| 37.5° | 1558.7 | 1554.3 | 1562.3 | 1509.5 | 1421.8 | 1300.5 | 1218.0 | 1239.2 | 1298.1 | 1584.2 | 1350.1 |
| 40° | 1768.0 | 1755.2 | 1732.8 | 1651.6 | 1559.5 | 1426.6 | 1312.9 | 1316.1 | 1366.6 | 1684.0 | 1427.7 |
| 42.5° | 2111.8 | 2070.6 | 1959.8 | 1810.4 | 1704.7 | 1573.1 | 1436.5 | 1421.4 | 1461.0 | 1815.6 | 1540.7 |
| 45° | 2456.4 | 2410.1 | 2222.7 | 1983.7 | 1855.2 | 1730.3 | 1589.5 | 1553.0 | 1578.6 | 1969.0 | 1685.9 |
| 47.5° | 2679.0 | 2656.2 | 2444.9 | 2157.1 | 2013.0 | 1901.7 | 1764.4 | 1704.3 | 1722.8 | 2142.7 | 1865.2 |
| 50° | 2744.3 | 2724.6 | 2558.5 | 2292.7 | 2161.9 | 2108.6 | 1980.9 | 1901.3 | 1904.5 | 2345.6 | 2080.2 |
| 52.5° | 2695.4 | 2687.4 | 2577.3 | 2376.8 | 2298.8 | 2326.8 | 2280.8 | 2169.9 | 2143.5 | 2568.1 | 2313.2 |
| 55° | 2630.2 | 2633.0 | 2590.5 | 2461.2 | 2438.1 | 2530.1 | 2673.0 | 2583.8 | 2471.7 | 2799.9 | 2555.7 |
| 57.5° | 2424.8 | 2426.8 | 2538.1 | 2622.1 | 2703.9 | 2815.1 | 2978.4 | 2940.8 | 2810.4 | 3050.0 | 2827.5 |
| 60° | 1952.5 | 1968.2 | 2215.9 | 2589.0 | 3007.7 | 3376.7 | 3416.8 | 3351.9 | 3170.5 | 3338.3 | 3181.0 |
| 62.5° | 1394.9 | 1408.9 | 1696.0 | 2247.5 | 2972.0 | 4012.3 | 4226.0 | 3968.3 | 3659.3 | 3769.4 | 3678.1 |
| 65° | 732.9 | 730.5 | 952.7 | 1553.0 | 2503.3 | 4159.6 | 5501.3 | 5062.6 | 4482.7 | 4362.2 | 4158.4 |
| 67.5° | 409.5 | 422.7 | 508.7 | 783.4 | 1631.5 | 3660.8 | 6315.9 | 6445.2 | 5627.5 | 4832.4 | 4137.6 |
| 69° | 378.7 | 383.1 | 440.7 | 605.6 | 1063.6 | 3020.5 | 6245.8 | 6862.7 | 6110.1 | 4834.5 | 3871.1 |
| 70° | 367.9 | 372.7 | 425.1 | 558.0 | 893.4 | 2474.8 | 5990.8 | 6813.8 | 6227.4 | 4727.2 | 3628.4 |
| 72.5° | 329.8 | 336.2 | 387.1 | 501.6 | 752.9 | 1275.6 | 4825.7 | 5831.9 | 5641.1 | 4131.6 | 2813.5 |
| 75° | 281.4 | 292.2 | 369.1 | 498.0 | 713.3 | 811.0 | 3218.2 | 4345.0 | 4198.4 | 2954.8 | 1596.3 |
| 77.5° | 116.5 | 117.6 | 161.3 | 364.7 | 748.5 | 776.1 | 1729.6 | 2752.2 | 2436.5 | 1295.7 | 480.7 |
| 80° | 81.2 | 79.7 | 80.4 | 106.5 | 604.1 | 781.3 | 887.4 | 1399.7 | 1087.9 | 341.9 | 224.9 |
| 82.5° | 68.4 | 67.6 | 70.9 | 66.8 | 204.5 | 886.6 | 742.2 | 729.7 | 512.4 | 184.1 | 107.3 |
| 85° | 45.2 | 44.0 | 58.0 | 60.9 | 97.3 | 704.1 | 798.1 | 573.6 | 381.9 | 98.5 | 45.6 |
| 87.5° | 22.0 | 22.4 | 33.2 | 41.2 | 51.7 | 222.9 | 764.6 | 453.5 | 295.0 | 42.9 | 18.4 |
| 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: P196141

CATALOG NUMBER: NAV-AF-01-D-UNV-SL3

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 | 1592.6 |
| 2.5° | 1567.1 | 1555.1 | 1544.2 | 1530.6 | 1520.2 | 1511.4 | 1499.4 | 1499.0 | 1497.0 | 1499.9 | 1500.6 |
| 5° | 1532.3 | 1512.2 | 1481.8 | 1447.8 | 1423.7 | 1392.1 | 1361.3 | 1350.9 | 1339.3 | 1338.1 | 1341.7 |
| 7.5° | 1479.8 | 1448.6 | 1396.5 | 1344.5 | 1292.5 | 1239.2 | 1188.8 | 1163.2 | 1138.3 | 1130.8 | 1134.4 |
| 10° | 1421.4 | 1381.7 | 1302.1 | 1217.2 | 1144.0 | 1064.7 | 987.9 | 938.3 | 893.0 | 873.8 | 878.6 |
| 12.5° | 1375.8 | 1325.3 | 1213.2 | 1103.2 | 993.5 | 879.8 | 778.6 | 680.5 | 606.4 | 573.2 | 575.2 |
| 15° | 1336.5 | 1272.0 | 1130.0 | 983.5 | 846.2 | 690.5 | 549.9 | 436.3 | 371.4 | 347.4 | 346.7 |
| 17.5° | 1294.0 | 1216.0 | 1043.1 | 872.2 | 694.1 | 501.6 | 368.3 | 301.1 | 275.4 | 267.4 | 267.4 |
| 20° | 1248.8 | 1158.4 | 952.3 | 750.9 | 534.0 | 350.3 | 277.0 | 250.9 | 241.3 | 239.0 | 238.6 |
| 22.5° | 1206.8 | 1101.9 | 861.0 | 621.6 | 386.3 | 265.8 | 235.8 | 225.8 | 224.1 | 226.2 | 226.2 |
| 25° | 1173.6 | 1052.3 | 768.5 | 485.5 | 281.0 | 222.6 | 209.7 | 208.6 | 214.5 | 221.8 | 222.9 |
| 27.5° | 1148.8 | 1007.9 | 677.3 | 354.7 | 221.0 | 193.7 | 189.3 | 194.6 | 208.6 | 222.9 | 225.8 |
| 30° | 1131.6 | 969.9 | 567.9 | 255.0 | 184.1 | 169.7 | 171.8 | 181.0 | 202.1 | 224.1 | 230.2 |
| 32.5° | 1123.9 | 939.1 | 457.9 | 195.7 | 157.3 | 149.4 | 154.5 | 166.5 | 188.5 | 210.5 | 217.8 |
| 35° | 1131.2 | 916.7 | 356.2 | 162.5 | 137.7 | 131.7 | 137.7 | 150.1 | 164.5 | 175.3 | 179.7 |
| 37.5° | 1157.2 | 908.6 | 268.2 | 144.1 | 124.9 | 118.9 | 123.7 | 132.1 | 138.5 | 142.5 | 144.5 |
| 40° | 1212.0 | 917.0 | 210.1 | 134.5 | 117.6 | 110.9 | 112.1 | 116.1 | 120.5 | 123.7 | 124.1 |
| 42.5° | 1299.2 | 944.6 | 186.9 | 130.9 | 113.2 | 104.4 | 102.5 | 105.3 | 110.1 | 114.5 | 115.3 |
| 45° | 1415.4 | 990.6 | 184.5 | 132.1 | 111.3 | 99.2 | 95.2 | 98.1 | 104.4 | 111.7 | 112.8 |
| 47.5° | 1565.4 | 1063.6 | 195.7 | 138.5 | 112.5 | 96.5 | 90.4 | 93.3 | 101.7 | 111.3 | 112.8 |
| 50° | 1743.2 | 1164.4 | 216.6 | 148.1 | 118.0 | 96.5 | 88.5 | 90.8 | 99.6 | 110.5 | 112.1 |
| 52.5° | 1952.5 | 1304.9 | 238.1 | 157.7 | 126.1 | 100.0 | 89.3 | 88.9 | 96.9 | 106.9 | 108.8 |
| 55° | 2183.5 | 1479.4 | 259.0 | 166.1 | 130.5 | 104.9 | 91.2 | 86.4 | 92.9 | 100.9 | 102.5 |
| 57.5° | 2455.3 | 1718.4 | 295.4 | 174.1 | 132.9 | 108.4 | 93.7 | 84.1 | 87.7 | 93.3 | 94.4 |
| 60° | 2824.0 | 2069.4 | 366.2 | 187.7 | 137.3 | 110.1 | 94.1 | 81.6 | 81.2 | 85.2 | 85.6 |
| 62.5° | 3304.6 | 2480.5 | 433.9 | 203.8 | 146.1 | 110.5 | 92.5 | 80.1 | 76.0 | 77.2 | 77.2 |
| 65° | 3646.5 | 2631.7 | 414.3 | 217.4 | 154.1 | 110.1 | 90.8 | 78.9 | 72.0 | 70.1 | 70.1 |
| 67.5° | 3451.9 | 2324.8 | 351.8 | 221.0 | 154.9 | 105.7 | 87.3 | 76.0 | 68.4 | 63.6 | 63.6 |
| 69° | 3166.1 | 2037.8 | 323.0 | 214.5 | 148.5 | 100.5 | 83.3 | 73.2 | 66.1 | 60.5 | 60.5 |
| 70° | 2933.2 | 1820.4 | 305.5 | 206.9 | 140.9 | 96.1 | 79.7 | 70.5 | 63.6 | 58.8 | 58.4 |
| 72.5° | 2189.8 | 1214.9 | 261.0 | 178.5 | 115.7 | 81.2 | 69.7 | 62.8 | 57.3 | 54.0 | 54.0 |
| 75° | 1155.6 | 608.9 | 213.7 | 145.7 | 89.3 | 64.9 | 57.3 | 52.9 | 49.6 | 49.2 | 48.8 |
| 77.5° | 378.7 | 275.4 | 153.7 | 109.7 | 65.7 | 50.4 | 45.6 | 42.9 | 42.5 | 44.0 | 44.0 |
| 80° | 204.5 | 164.5 | 98.8 | 74.1 | 45.6 | 37.6 | 35.2 | 34.8 | 36.0 | 38.5 | 38.5 |
| 82.5° | 99.2 | 81.2 | 58.8 | 45.6 | 31.2 | 27.6 | 27.6 | 28.0 | 29.7 | 32.4 | 32.4 |
| 85° | 42.9 | 38.5 | 34.1 | 25.6 | 19.2 | 17.2 | 19.6 | 21.6 | 22.8 | 24.9 | 25.6 |
| 87.5° | 20.5 | 18.0 | 15.7 | 10.0 | 8.4 | 8.8 | 10.4 | 12.8 | 15.2 | 16.8 | 17.2 |
| 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)