

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: P196339

Luminaire Tested: **NAV-AF-01-D-UNV-T3R-1200**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196339
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24250)
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-T3R-1200
Description: NAVION ROADWAY AND AREA LUMINAIRE
(1) 70 CRI, 4000K, 1200mA LIGHTSQUARE WITH 16 LEDS EACH AND TYPE III
ROADWAY OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6973.4 lumens
Efficiency: N/A
Efficacy: 104.1 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Medium - Full Cutoff
BUG Rating: B1 - U0 - G2

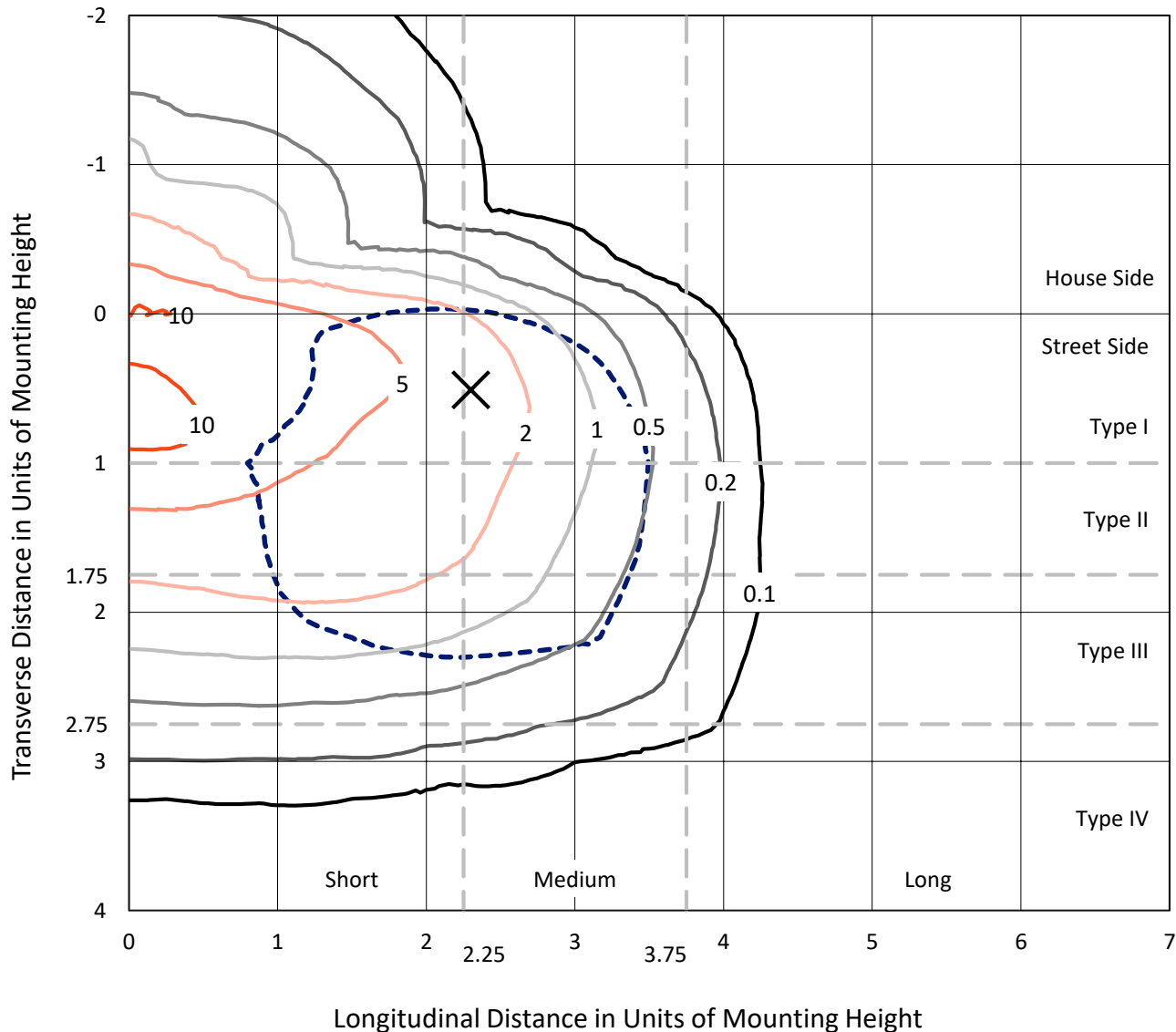
Input Watts (W): 67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

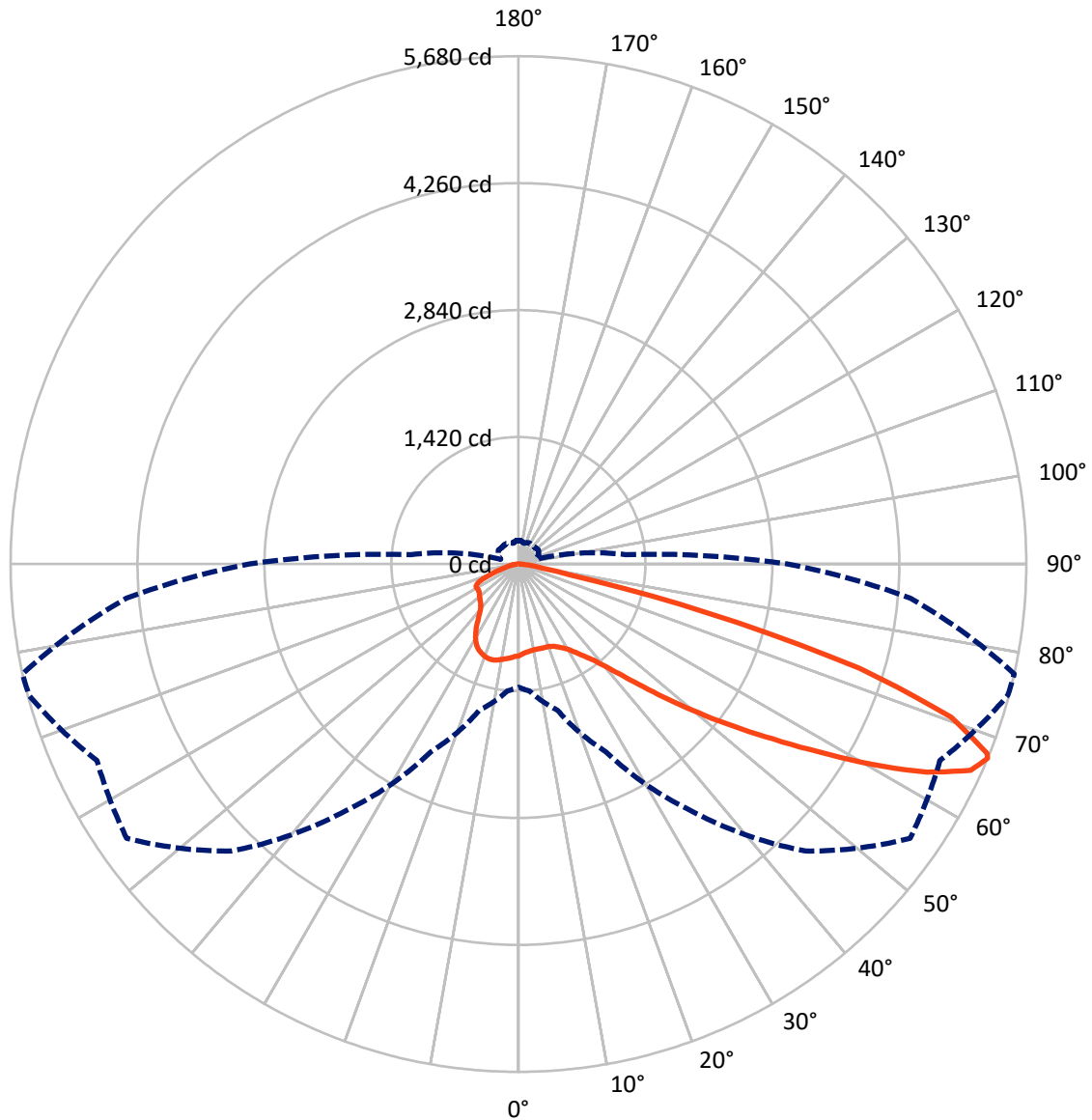
× Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 12.3 fc
 Type III - Medium - Full Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 77.5-Deg Lateral - - - Horizontal Cone Through 67-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1198.4 | 0.0 | 1198.4 |
| | % Fixture | 17.2 | 0.0 | 17.2 |
| Street Side | Lumens | 5775.1 | 0.0 | 5775.1 |
| | % Fixture | 82.8 | 0.0 | 82.8 |
| Total | Lumens | 6973.4 | 0.0 | 6973.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 91.4 | 1.3 |
| 10°-20° | 253.1 | 3.6 |
| 20°-30° | 430.1 | 6.2 |
| 30°-40° | 688.1 | 9.9 |
| 40°-50° | 1059.3 | 15.2 |
| 50°-60° | 1469.7 | 21.1 |
| 60°-70° | 1960.4 | 28.1 |
| 70°-80° | 933.0 | 13.4 |
| 80°-90° | 88.3 | 1.3 |
| 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° | 6973.4 | 100.0 |
| 0°-180° | 6973.4 | 100.0 |



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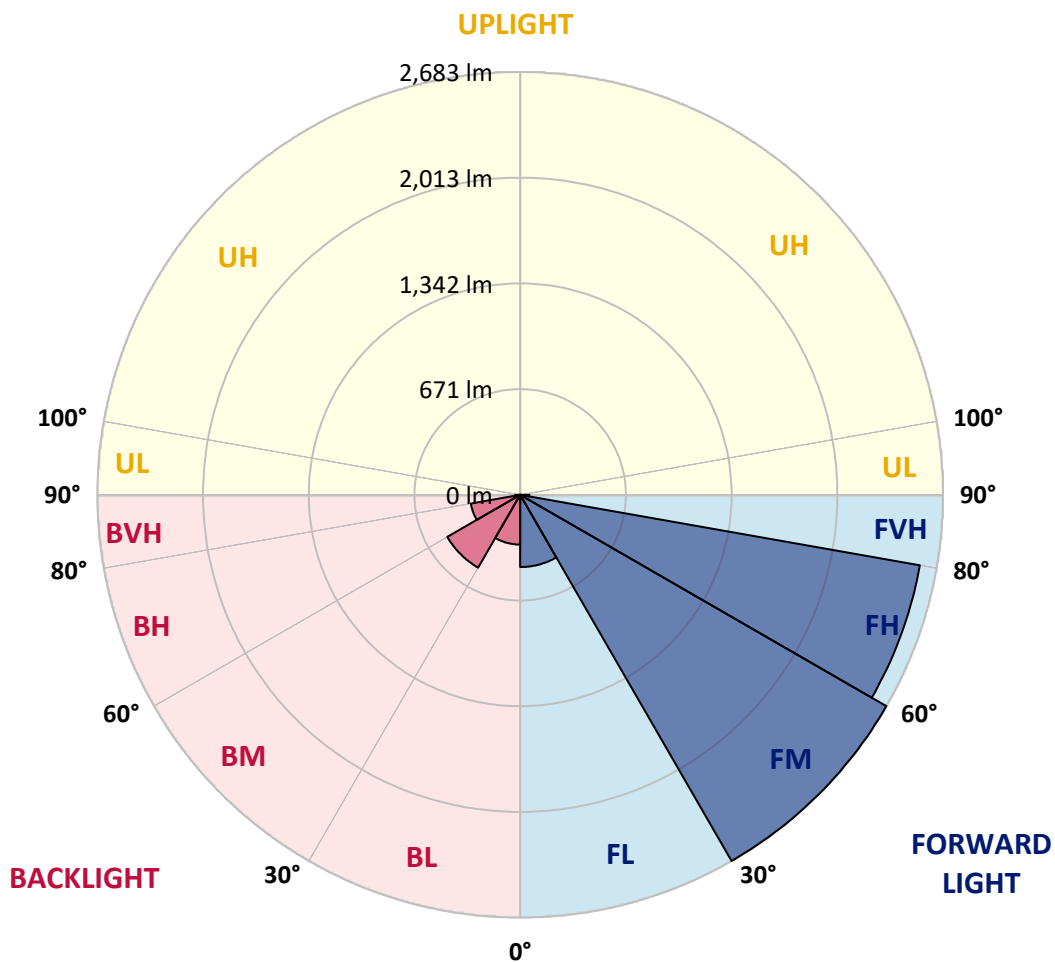
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 458.6 | 6.6 | | | |
| FM | (30°-60°) | 2683.5 | 38.5 | | | |
| FH | (60°-80°) | 2575.7 | 36.9 | | | G2/5000 |
| FVH | (80°-90°) | 57.4 | 0.8 | | | G1/100 |
| BL | (0°-30°) | 316.1 | 4.5 | B1/500 | | |
| BM | (30°-60°) | 533.6 | 7.7 | B1/1000 | | |
| BH | (60°-80°) | 317.8 | 4.6 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 31.0 | 0.4 | | | 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





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 77.5° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 |
| 2.5° | 920.2 | 924.5 | 925.1 | 937.5 | 943.2 | 957.4 | 972.8 | 986.6 | 998.7 | 1003.0 | 1010.8 |
| 5° | 828.1 | 828.1 | 829.3 | 837.5 | 853.4 | 876.3 | 908.6 | 944.0 | 981.0 | 990.1 | 1012.9 |
| 7.5° | 779.8 | 780.6 | 781.4 | 789.7 | 802.2 | 822.5 | 854.8 | 903.1 | 964.6 | 979.8 | 1019.9 |
| 10° | 784.1 | 782.8 | 778.5 | 776.7 | 781.9 | 794.8 | 822.9 | 872.5 | 950.8 | 974.2 | 1032.4 |
| 12.5° | 851.7 | 849.2 | 834.9 | 814.3 | 795.2 | 790.5 | 810.0 | 856.9 | 944.4 | 974.2 | 1053.4 |
| 15° | 967.7 | 969.5 | 941.4 | 898.3 | 848.7 | 815.1 | 812.5 | 851.3 | 942.2 | 976.7 | 1078.0 |
| 17.5° | 1118.6 | 1119.4 | 1080.6 | 1018.1 | 935.8 | 866.4 | 830.2 | 851.3 | 942.2 | 979.4 | 1101.7 |
| 20° | 1278.9 | 1272.9 | 1228.9 | 1150.4 | 1043.5 | 937.5 | 862.6 | 856.5 | 944.8 | 983.2 | 1124.1 |
| 22.5° | 1416.4 | 1410.8 | 1364.7 | 1282.4 | 1159.9 | 1021.5 | 906.0 | 873.7 | 959.0 | 999.1 | 1155.6 |
| 25° | 1536.7 | 1540.2 | 1495.2 | 1402.6 | 1275.9 | 1116.3 | 971.1 | 913.4 | 988.8 | 1028.1 | 1194.4 |
| 27.5° | 1682.8 | 1676.3 | 1624.5 | 1536.3 | 1395.3 | 1214.7 | 1052.6 | 963.4 | 1024.2 | 1062.9 | 1241.9 |
| 30° | 1851.7 | 1848.8 | 1778.9 | 1688.0 | 1526.8 | 1324.6 | 1133.2 | 1017.2 | 1070.3 | 1110.8 | 1301.3 |
| 32.5° | 2056.9 | 2056.5 | 1981.5 | 1869.9 | 1674.6 | 1448.7 | 1228.5 | 1091.0 | 1137.5 | 1178.4 | 1380.2 |
| 35° | 2289.3 | 2288.9 | 2211.2 | 2063.8 | 1844.9 | 1586.2 | 1340.6 | 1180.6 | 1220.7 | 1263.9 | 1474.2 |
| 37.5° | 2450.5 | 2447.9 | 2407.4 | 2264.3 | 2033.2 | 1746.2 | 1480.6 | 1301.3 | 1315.1 | 1363.4 | 1587.5 |
| 40° | 2481.5 | 2497.0 | 2531.9 | 2447.4 | 2238.8 | 1923.8 | 1621.2 | 1431.1 | 1444.0 | 1506.1 | 1730.2 |
| 42.5° | 2447.9 | 2468.2 | 2584.1 | 2607.8 | 2444.4 | 2138.8 | 1797.0 | 1610.8 | 1627.2 | 1704.3 | 1897.9 |
| 45° | 2418.6 | 2436.3 | 2581.5 | 2696.6 | 2647.5 | 2373.3 | 2016.4 | 1830.2 | 1861.3 | 1956.9 | 2089.3 |
| 47.5° | 2368.5 | 2384.9 | 2530.7 | 2712.6 | 2763.4 | 2599.2 | 2280.7 | 2094.0 | 2147.5 | 2263.4 | 2307.4 |
| 50° | 2366.0 | 2373.3 | 2461.2 | 2659.1 | 2803.5 | 2770.8 | 2573.3 | 2402.6 | 2484.5 | 2618.1 | 2548.8 |
| 52.5° | 2300.5 | 2351.8 | 2431.6 | 2573.7 | 2804.3 | 2870.7 | 2861.7 | 2741.0 | 2867.3 | 3015.1 | 2813.4 |
| 55° | 1899.6 | 1958.6 | 2332.3 | 2531.9 | 2799.2 | 2956.5 | 3125.0 | 3100.9 | 3298.3 | 3453.9 | 3110.0 |
| 57.5° | 1773.7 | 1798.8 | 2046.1 | 2544.5 | 2842.3 | 3098.3 | 3388.4 | 3487.5 | 3791.5 | 3961.3 | 3465.6 |
| 60° | 1739.2 | 1765.5 | 1988.8 | 2550.4 | 2959.1 | 3356.5 | 3745.7 | 3924.2 | 4371.2 | 4551.4 | 3869.4 |
| 62.5° | 1700.9 | 1734.9 | 1993.1 | 2556.0 | 3164.3 | 3738.4 | 4219.9 | 4397.9 | 4966.4 | 5127.2 | 4247.9 |
| 65° | 1588.8 | 1634.1 | 1913.4 | 2520.8 | 3388.8 | 4217.7 | 4846.6 | 4891.9 | 5458.3 | 5560.5 | 4476.3 |
| 67° | 1376.3 | 1425.9 | 1694.4 | 2316.4 | 3368.2 | 4540.6 | 5347.9 | 5201.0 | 5667.4 | 5679.8 | 4402.3 |
| 67.5° | 1309.1 | 1360.3 | 1620.3 | 2231.5 | 3309.1 | 4582.8 | 5436.7 | 5243.6 | 5665.6 | 5651.8 | 4333.2 |
| 70° | 881.5 | 939.3 | 1147.4 | 1638.4 | 2654.4 | 4265.2 | 5415.2 | 5112.2 | 5294.1 | 5135.8 | 3722.9 |
| 72.5° | 437.5 | 439.3 | 572.4 | 897.4 | 1608.2 | 3059.1 | 4517.4 | 4373.3 | 4291.5 | 3992.8 | 2731.9 |
| 75° | 210.8 | 214.6 | 270.3 | 396.6 | 678.0 | 1579.3 | 3080.6 | 2950.9 | 2512.6 | 2175.5 | 1367.3 |
| 77.5° | 160.8 | 164.7 | 209.9 | 258.2 | 282.7 | 515.1 | 1525.9 | 1233.2 | 728.0 | 581.4 | 385.3 |
| 80° | 124.2 | 131.4 | 177.2 | 198.2 | 187.1 | 206.4 | 479.8 | 377.6 | 283.2 | 259.9 | 191.0 |
| 82.5° | 97.0 | 101.3 | 150.5 | 150.5 | 129.3 | 138.4 | 223.3 | 218.1 | 175.8 | 158.7 | 102.6 |
| 85° | 68.5 | 77.1 | 121.1 | 112.1 | 84.9 | 85.8 | 133.6 | 128.0 | 90.5 | 72.8 | 40.1 |
| 87.5° | 30.6 | 39.2 | 86.2 | 73.2 | 45.2 | 34.9 | 54.7 | 47.0 | 35.8 | 27.6 | 18.5 |
| 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-01-D-UNV-T3R-1200

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 | 1026.3 |
| 2.5° | 1019.4 | 1026.3 | 1037.1 | 1043.5 | 1052.2 | 1055.6 | 1059.1 | 1065.1 | 1069.8 | 1068.6 | 1066.4 |
| 5° | 1028.9 | 1040.5 | 1053.9 | 1058.2 | 1058.2 | 1053.9 | 1051.3 | 1051.7 | 1050.5 | 1049.5 | 1047.0 |
| 7.5° | 1042.7 | 1058.7 | 1068.2 | 1063.8 | 1050.5 | 1033.6 | 1017.7 | 1008.2 | 999.1 | 993.6 | 995.2 |
| 10° | 1062.1 | 1079.7 | 1080.2 | 1061.2 | 1029.3 | 992.7 | 961.3 | 941.0 | 921.6 | 913.0 | 915.5 |
| 12.5° | 1090.1 | 1107.8 | 1092.7 | 1051.7 | 995.7 | 938.4 | 880.7 | 838.8 | 801.3 | 792.3 | 789.7 |
| 15° | 1120.2 | 1134.0 | 1100.5 | 1031.4 | 947.5 | 853.0 | 756.1 | 693.6 | 651.7 | 644.4 | 641.8 |
| 17.5° | 1146.5 | 1154.3 | 1096.6 | 995.2 | 871.1 | 722.4 | 609.5 | 567.2 | 558.6 | 562.9 | 562.9 |
| 20° | 1169.8 | 1167.3 | 1079.7 | 939.3 | 750.8 | 577.6 | 512.1 | 511.7 | 523.2 | 534.1 | 534.9 |
| 22.5° | 1199.2 | 1178.8 | 1053.0 | 856.0 | 607.3 | 481.9 | 470.7 | 481.9 | 494.8 | 506.9 | 508.2 |
| 25° | 1234.1 | 1191.8 | 1017.2 | 737.5 | 488.4 | 437.5 | 442.2 | 451.7 | 459.9 | 469.4 | 469.8 |
| 27.5° | 1269.0 | 1201.8 | 966.8 | 598.3 | 423.7 | 409.1 | 414.2 | 418.1 | 420.2 | 426.3 | 426.3 |
| 30° | 1309.5 | 1209.5 | 894.0 | 479.4 | 393.9 | 384.0 | 381.0 | 379.3 | 381.0 | 389.2 | 389.6 |
| 32.5° | 1360.3 | 1223.2 | 794.4 | 411.2 | 380.1 | 366.4 | 350.9 | 342.3 | 348.3 | 362.9 | 365.5 |
| 35° | 1418.1 | 1239.7 | 675.0 | 384.0 | 375.4 | 357.7 | 329.3 | 316.0 | 318.1 | 331.4 | 333.6 |
| 37.5° | 1490.5 | 1260.8 | 557.3 | 377.6 | 380.1 | 356.9 | 319.4 | 300.4 | 290.9 | 291.3 | 290.9 |
| 40° | 1583.2 | 1282.0 | 464.2 | 379.3 | 390.6 | 359.1 | 314.7 | 284.9 | 265.0 | 266.0 | 267.7 |
| 42.5° | 1680.2 | 1295.7 | 405.2 | 384.5 | 403.0 | 362.1 | 312.9 | 269.9 | 252.6 | 267.2 | 280.6 |
| 45° | 1793.5 | 1291.8 | 374.6 | 389.2 | 412.6 | 363.4 | 306.5 | 268.1 | 253.9 | 297.9 | 322.8 |
| 47.5° | 1923.8 | 1275.0 | 357.3 | 391.4 | 415.1 | 362.9 | 301.8 | 273.7 | 264.6 | 340.9 | 369.4 |
| 50° | 2065.1 | 1248.7 | 343.5 | 387.9 | 413.8 | 361.2 | 306.9 | 280.6 | 268.9 | 350.5 | 372.5 |
| 52.5° | 2219.9 | 1224.6 | 329.3 | 380.1 | 407.3 | 356.1 | 313.3 | 277.6 | 256.9 | 322.8 | 339.6 |
| 55° | 2403.0 | 1218.9 | 313.3 | 366.8 | 396.6 | 350.5 | 310.0 | 268.1 | 243.6 | 286.2 | 296.6 |
| 57.5° | 2612.5 | 1253.9 | 292.7 | 350.5 | 381.9 | 339.2 | 301.8 | 262.9 | 238.8 | 260.3 | 266.0 |
| 60° | 2878.5 | 1331.1 | 270.7 | 333.2 | 363.8 | 322.4 | 294.4 | 264.2 | 240.1 | 256.5 | 257.8 |
| 62.5° | 3086.2 | 1400.4 | 250.8 | 312.1 | 339.6 | 302.2 | 286.6 | 265.6 | 244.0 | 261.7 | 259.5 |
| 65° | 3161.7 | 1366.4 | 226.3 | 280.6 | 305.7 | 279.8 | 275.9 | 266.4 | 244.0 | 264.6 | 259.9 |
| 67° | 3007.0 | 1203.9 | 203.1 | 249.2 | 273.2 | 259.9 | 265.6 | 262.9 | 239.7 | 264.2 | 256.0 |
| 67.5° | 2933.2 | 1146.5 | 197.0 | 244.0 | 264.6 | 253.9 | 262.9 | 261.3 | 238.3 | 263.4 | 253.9 |
| 70° | 2419.0 | 822.5 | 166.3 | 204.8 | 221.6 | 223.7 | 246.9 | 250.0 | 228.0 | 247.5 | 230.2 |
| 72.5° | 1721.1 | 514.6 | 143.5 | 158.7 | 178.9 | 191.4 | 225.5 | 234.9 | 214.2 | 215.1 | 200.9 |
| 75° | 851.7 | 276.3 | 128.0 | 122.4 | 139.2 | 159.5 | 196.5 | 214.2 | 194.0 | 179.3 | 174.6 |
| 77.5° | 287.6 | 156.5 | 108.2 | 98.7 | 108.2 | 128.0 | 163.0 | 187.1 | 171.1 | 151.7 | 148.7 |
| 80° | 148.7 | 113.8 | 84.5 | 79.3 | 85.3 | 99.1 | 127.6 | 155.6 | 146.1 | 147.0 | 121.1 |
| 82.5° | 92.7 | 69.4 | 60.8 | 60.4 | 64.7 | 75.9 | 94.0 | 126.3 | 125.4 | 107.3 | 78.1 |
| 85° | 43.1 | 40.1 | 38.8 | 40.1 | 41.4 | 43.1 | 61.2 | 90.1 | 95.2 | 57.8 | 51.2 |
| 87.5° | 18.1 | 17.7 | 15.5 | 16.8 | 18.5 | 18.1 | 24.6 | 38.4 | 53.4 | 36.2 | 33.1 |
| 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)