

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: P196145

Luminaire Tested: **NAV-AF-05-D-UNV-SL3**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196145
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-05-D-UNV-SL3
Description: NAVION ROADWAY AND AREA LUMINAIRE
(5) 70 CRI, 4000K, 1050mA 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: 30719.2 lumens
Efficiency: N/A
Efficacy: 110.1 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')
IES Classification: Type III - Medium - Non-Cutoff
BUG Rating: B3 - U0 - G4

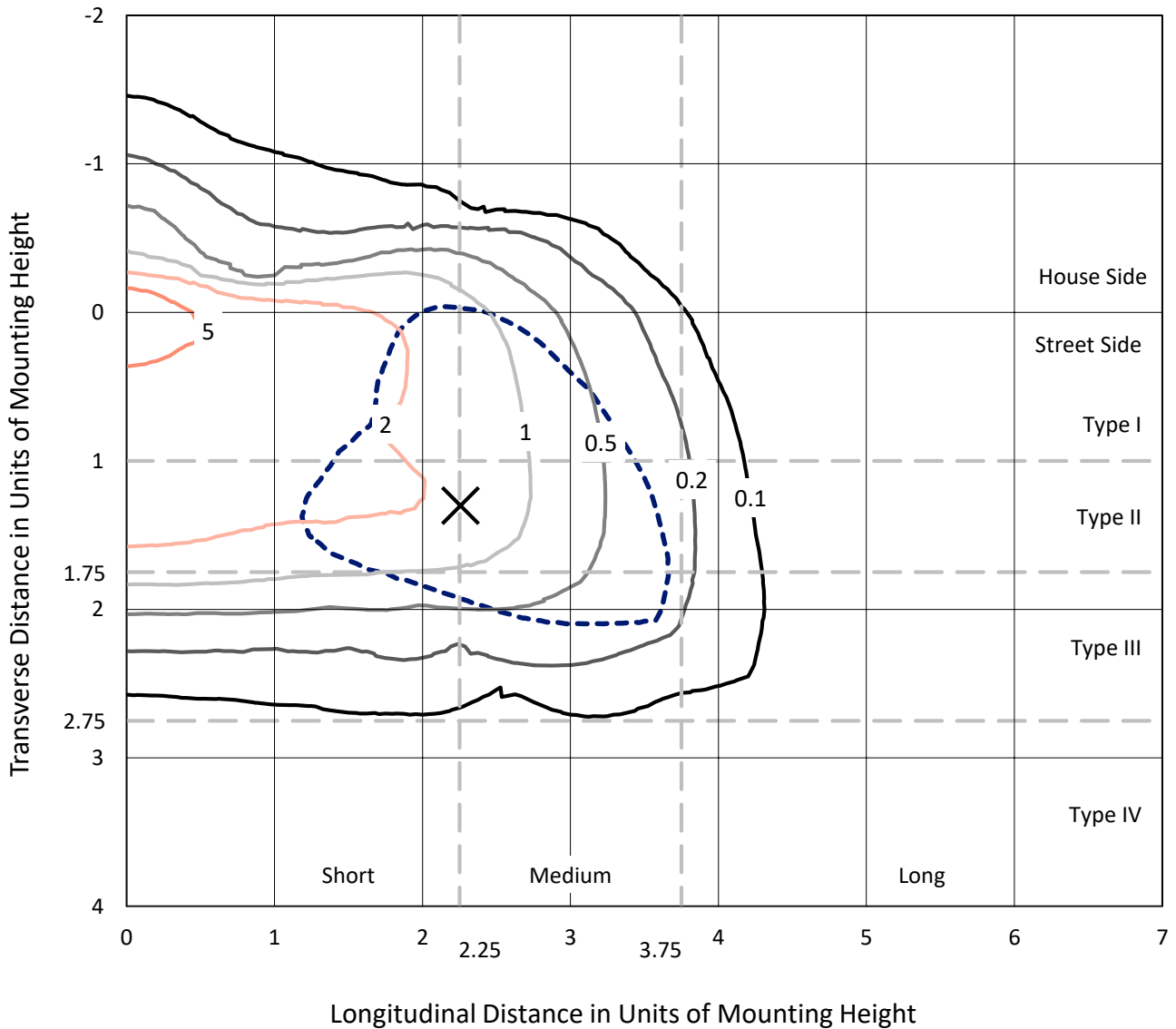
Input Watts (W): 279
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



REPORT NUMBER: P196145
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Iso-Footcandle Lines of Horizontal Illumination

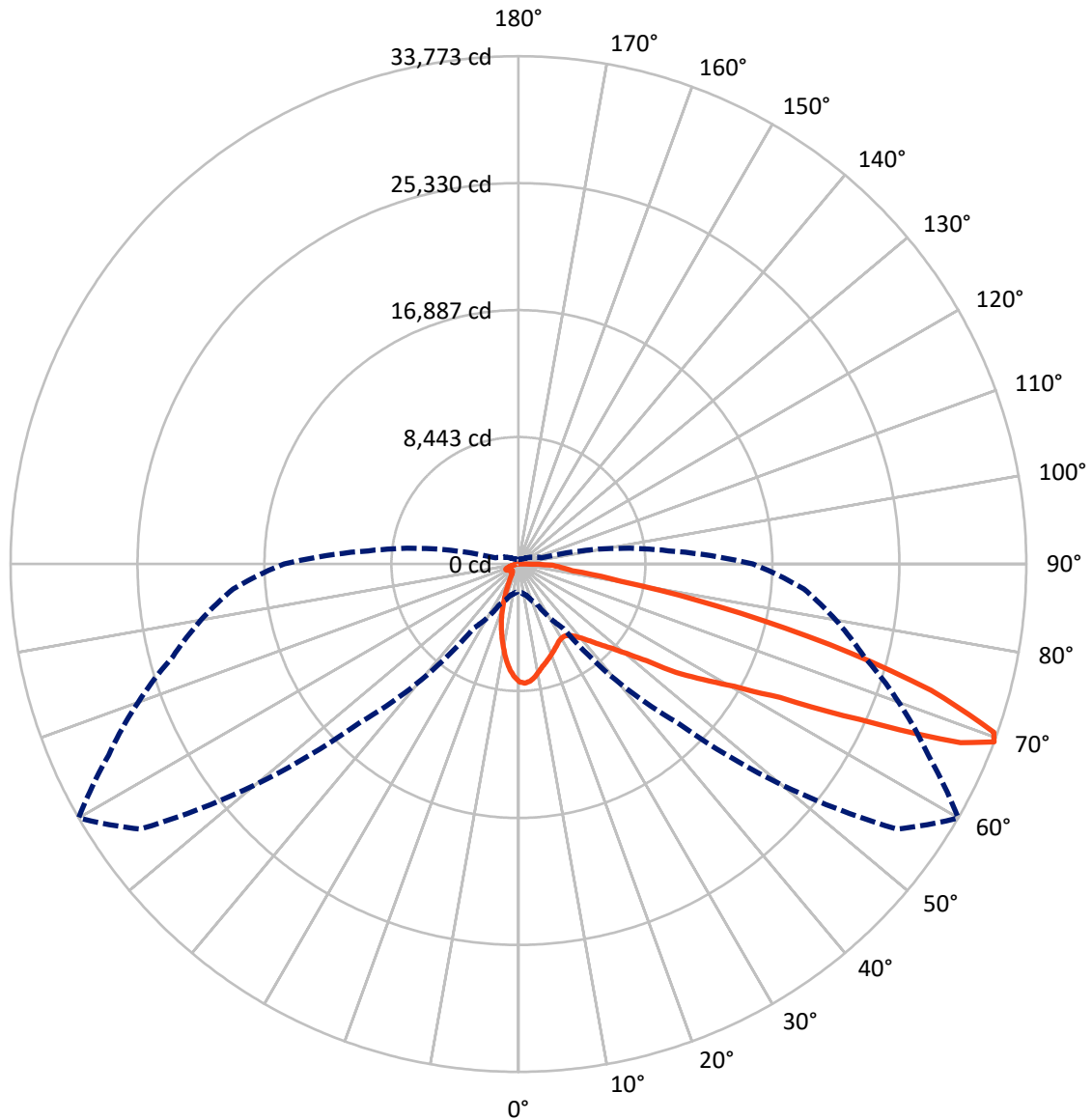
× Max cd
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 8.7 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

REPORT NUMBER: P196145

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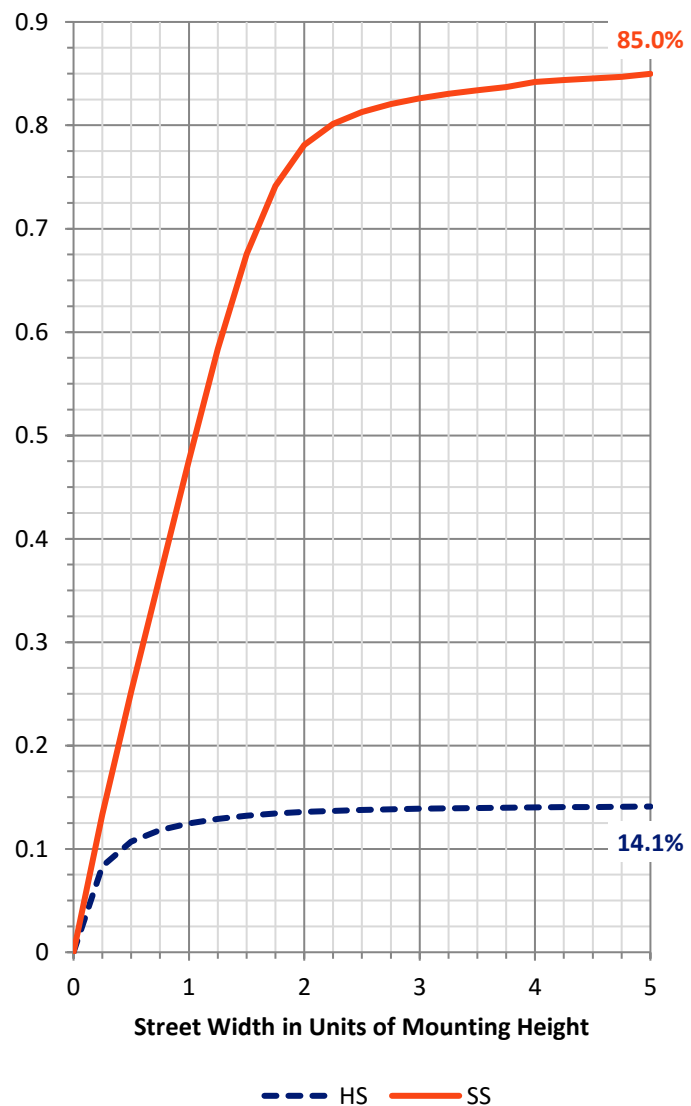
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4381.6 | 0.0 | 4381.6 |
| | % Fixture | 14.3 | 0.0 | 14.3 |
| Street Side | Lumens | 26337.6 | 0.0 | 26337.6 |
| | % Fixture | 85.7 | 0.0 | 85.7 |
| Total | Lumens | 30719.2 | 0.0 | 30719.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 664.9 | 2.2 |
| 10°-20° | 1423.7 | 4.6 |
| 20°-30° | 1816.2 | 5.9 |
| 30°-40° | 2499.3 | 8.1 |
| 40°-50° | 4048.3 | 13.2 |
| 50°-60° | 6353.7 | 20.7 |
| 60°-70° | 8470.6 | 27.6 |
| 70°-80° | 4711.6 | 15.3 |
| 80°-90° | 730.8 | 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° | 30719.2 | 100.0 |
| 0°-180° | 30719.2 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P196145

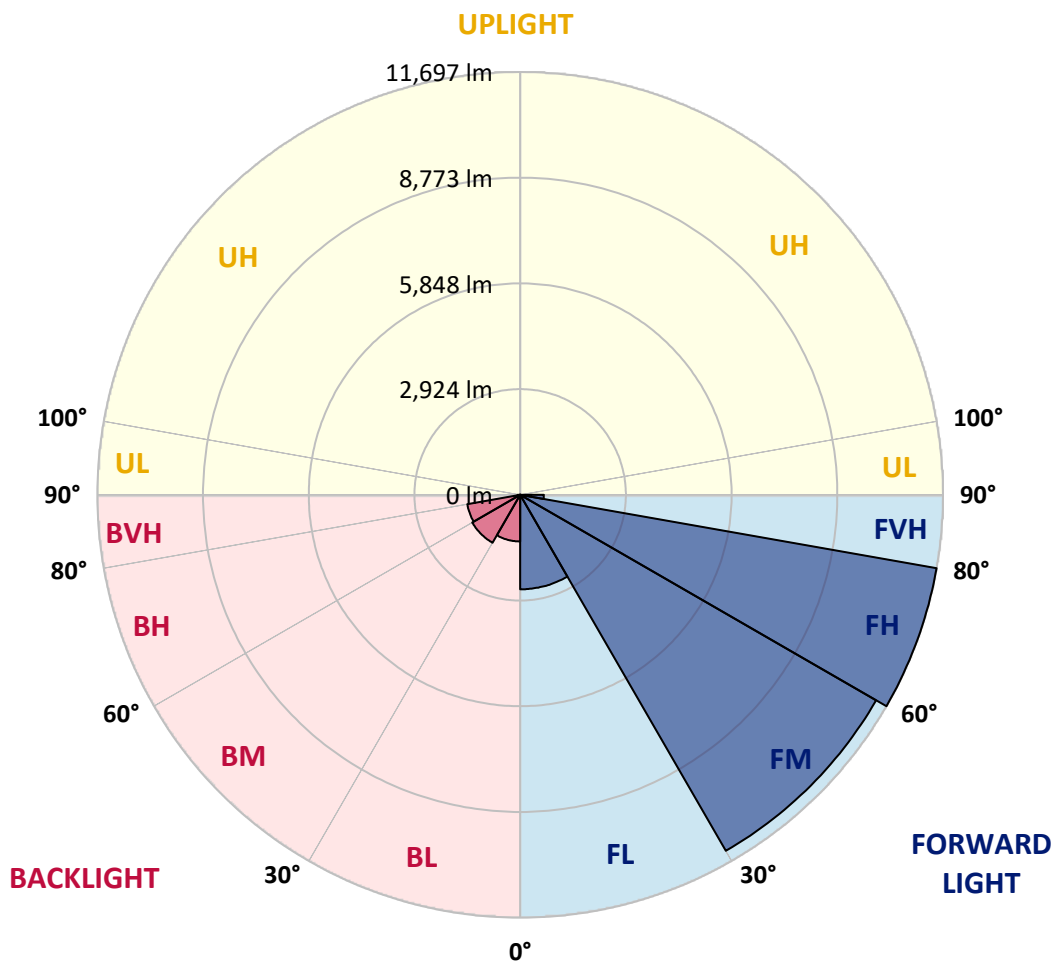
CATALOG NUMBER: NAV-AF-05-D-UNV-SL3

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 2613.6 | 8.5 | | | |
| FM (30°-60°) | 11370.7 | 37.0 | | | |
| FH (60°-80°) | 11696.7 | 38.1 | | | G4/12000 |
| FVH (80°-90°) | 656.7 | 2.1 | | | G4/750 |
| BL (0°-30°) | 1291.3 | 4.2 | B3/2500 | | |
| BM (30°-60°) | 1530.7 | 5.0 | B2/2500 | | |
| BH (60°-80°) | 1485.6 | 4.8 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 74.1 | 0.2 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4

Type III Medium





REPORT NUMBER: P196145

CATALOG NUMBER: NAV-AF-05-D-UNV-SL3

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 60° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 |
| 2.5° | 8046.9 | 8068.6 | 8068.6 | 8050.8 | 8041.0 | 7983.8 | 7950.4 | 7926.7 | 7885.4 | 7808.6 | 7739.6 |
| 5° | 7759.3 | 7800.7 | 7818.4 | 7826.3 | 7877.5 | 7859.7 | 7861.8 | 7846.0 | 7810.5 | 7727.8 | 7615.5 |
| 7.5° | 7231.3 | 7239.2 | 7270.8 | 7323.9 | 7448.1 | 7534.7 | 7605.6 | 7619.4 | 7611.6 | 7550.5 | 7392.9 |
| 10° | 6711.4 | 6725.1 | 6762.5 | 6853.2 | 6971.4 | 7095.5 | 7249.1 | 7312.2 | 7359.4 | 7339.8 | 7140.8 |
| 12.5° | 6279.9 | 6281.9 | 6323.3 | 6427.7 | 6559.7 | 6715.3 | 6924.0 | 7022.6 | 7134.9 | 7180.2 | 6957.6 |
| 15° | 5864.3 | 5891.9 | 5931.3 | 6057.3 | 6220.9 | 6417.8 | 6658.2 | 6794.0 | 6941.8 | 7071.9 | 6815.7 |
| 17.5° | 5549.1 | 5570.8 | 5594.4 | 5698.9 | 5887.9 | 6134.1 | 6431.6 | 6577.4 | 6772.4 | 6971.4 | 6669.9 |
| 20° | 5375.8 | 5383.7 | 5365.9 | 5417.1 | 5576.7 | 5842.6 | 6187.3 | 6362.7 | 6595.2 | 6874.8 | 6520.3 |
| 22.5° | 5340.3 | 5340.3 | 5275.4 | 5265.4 | 5336.3 | 5561.0 | 5935.3 | 6149.9 | 6433.5 | 6807.8 | 6386.3 |
| 25° | 5505.8 | 5494.0 | 5371.8 | 5259.5 | 5233.9 | 5348.2 | 5694.9 | 5958.9 | 6295.6 | 6805.9 | 6285.8 |
| 27.5° | 5819.0 | 5803.2 | 5651.6 | 5462.5 | 5299.0 | 5249.7 | 5509.7 | 5779.6 | 6187.3 | 6872.9 | 6234.7 |
| 30° | 6209.0 | 6203.1 | 6049.4 | 5813.1 | 5543.2 | 5289.1 | 5436.9 | 5687.0 | 6114.5 | 6997.0 | 6232.6 |
| 32.5° | 6636.5 | 6608.9 | 6514.4 | 6278.0 | 5927.3 | 5507.8 | 5480.2 | 5691.0 | 6094.7 | 7178.1 | 6278.0 |
| 35° | 7091.5 | 7071.9 | 7048.2 | 6809.8 | 6415.8 | 5893.8 | 5671.2 | 5826.8 | 6191.3 | 7430.3 | 6406.0 |
| 37.5° | 7670.7 | 7649.0 | 7688.4 | 7428.4 | 6997.0 | 6400.1 | 5994.3 | 6098.7 | 6388.3 | 7796.7 | 6644.4 |
| 40° | 8700.9 | 8637.9 | 8527.5 | 8127.7 | 7674.6 | 7020.6 | 6461.2 | 6476.9 | 6725.1 | 8287.2 | 7026.5 |
| 42.5° | 10393.0 | 10190.1 | 9644.5 | 8909.7 | 8389.6 | 7741.6 | 7069.8 | 6995.0 | 7190.0 | 8935.3 | 7582.0 |
| 45° | 12089.1 | 11860.6 | 10938.7 | 9762.6 | 9130.3 | 8515.8 | 7822.3 | 7643.1 | 7769.2 | 9689.8 | 8297.1 |
| 47.5° | 13184.3 | 13072.1 | 12031.9 | 10615.6 | 9906.5 | 9358.9 | 8683.2 | 8387.7 | 8478.3 | 10544.7 | 9179.6 |
| 50° | 13505.4 | 13408.9 | 12591.4 | 11283.5 | 10639.3 | 10377.2 | 9748.9 | 9356.8 | 9372.6 | 11543.4 | 10237.4 |
| 52.5° | 13265.1 | 13225.7 | 12684.0 | 11697.0 | 11312.9 | 11450.8 | 11224.3 | 10678.7 | 10548.7 | 12638.7 | 11383.9 |
| 55° | 12944.0 | 12957.8 | 12749.0 | 12112.8 | 11998.5 | 12451.6 | 13154.7 | 12715.5 | 12163.9 | 13779.2 | 12577.6 |
| 57.5° | 11933.4 | 11943.4 | 12490.9 | 12904.6 | 13306.4 | 13854.1 | 14657.8 | 14472.6 | 13830.4 | 15010.4 | 13915.1 |
| 60° | 9609.0 | 9685.8 | 10905.2 | 12741.1 | 14801.6 | 16617.8 | 16814.8 | 16495.7 | 15603.3 | 16428.7 | 15654.5 |
| 62.5° | 6865.0 | 6934.0 | 8346.4 | 11060.8 | 14626.3 | 19745.9 | 20797.8 | 19529.3 | 18008.5 | 18550.3 | 18101.1 |
| 65° | 3606.8 | 3595.1 | 4688.3 | 7643.1 | 12319.6 | 20470.9 | 27073.8 | 24914.9 | 22060.5 | 21467.6 | 20464.9 |
| 67.5° | 2015.2 | 2080.2 | 2503.7 | 3855.0 | 8029.1 | 18016.4 | 31082.6 | 31718.8 | 27694.3 | 23782.2 | 20362.6 |
| 69° | 1863.5 | 1885.2 | 2168.9 | 2980.4 | 5233.9 | 14864.6 | 30737.8 | 33773.3 | 30070.0 | 23792.1 | 19050.6 |
| 70° | 1810.3 | 1833.9 | 2092.0 | 2746.0 | 4396.7 | 12179.7 | 29483.0 | 33533.0 | 30647.2 | 23264.2 | 17856.8 |
| 72.5° | 1623.2 | 1654.7 | 1904.8 | 2468.3 | 3705.3 | 6278.0 | 23748.7 | 28700.9 | 27761.4 | 20333.0 | 13846.2 |
| 75° | 1384.8 | 1438.0 | 1816.2 | 2450.5 | 3510.3 | 3990.9 | 15837.7 | 21382.9 | 20662.0 | 14541.6 | 7855.9 |
| 77.5° | 573.3 | 579.1 | 793.8 | 1794.6 | 3683.6 | 3819.6 | 8511.8 | 13544.8 | 11990.6 | 6376.5 | 2365.8 |
| 80° | 399.9 | 392.0 | 396.0 | 524.0 | 2972.5 | 3845.2 | 4367.2 | 6888.7 | 5354.1 | 1682.2 | 1107.0 |
| 82.5° | 336.9 | 332.9 | 348.6 | 329.0 | 1006.6 | 4363.3 | 3652.1 | 3591.1 | 2521.5 | 906.1 | 527.9 |
| 85° | 222.6 | 216.7 | 285.6 | 299.4 | 478.6 | 3465.0 | 3927.9 | 2822.8 | 1879.3 | 484.6 | 224.5 |
| 87.5° | 108.3 | 110.3 | 163.5 | 202.9 | 254.1 | 1097.2 | 3762.4 | 2231.9 | 1451.8 | 210.7 | 90.6 |
| 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: P196145
 CATALOG NUMBER: NAV-AF-05-D-UNV-SL3

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 | 7838.1 |
| 2.5° | 7712.0 | 7652.9 | 7599.7 | 7532.8 | 7481.6 | 7438.2 | 7379.2 | 7377.1 | 7367.3 | 7381.1 | 7385.0 |
| 5° | 7540.7 | 7442.2 | 7292.4 | 7125.1 | 7006.8 | 6851.2 | 6699.5 | 6648.3 | 6591.2 | 6585.2 | 6603.0 |
| 7.5° | 7282.6 | 7128.9 | 6872.9 | 6616.8 | 6360.7 | 6098.7 | 5850.5 | 5724.4 | 5602.3 | 5564.9 | 5582.7 |
| 10° | 6995.0 | 6800.0 | 6408.0 | 5990.4 | 5629.9 | 5239.9 | 4861.7 | 4617.4 | 4394.8 | 4300.2 | 4323.9 |
| 12.5° | 6770.4 | 6522.2 | 5970.7 | 5429.0 | 4889.2 | 4329.7 | 3831.4 | 3348.7 | 2984.4 | 2820.9 | 2830.7 |
| 15° | 6577.4 | 6260.3 | 5561.0 | 4840.0 | 4164.3 | 3398.0 | 2706.6 | 2147.2 | 1828.0 | 1709.9 | 1705.9 |
| 17.5° | 6368.6 | 5984.5 | 5133.5 | 4292.3 | 3415.7 | 2468.3 | 1812.3 | 1481.3 | 1355.3 | 1315.8 | 1315.8 |
| 20° | 6146.0 | 5700.8 | 4686.3 | 3695.5 | 2627.8 | 1723.7 | 1363.2 | 1235.1 | 1187.9 | 1176.0 | 1174.0 |
| 22.5° | 5939.2 | 5423.1 | 4237.2 | 3059.2 | 1900.9 | 1307.9 | 1160.2 | 1111.0 | 1103.2 | 1113.0 | 1113.0 |
| 25° | 5775.7 | 5178.8 | 3782.2 | 2389.4 | 1382.8 | 1095.3 | 1032.3 | 1026.3 | 1055.9 | 1091.3 | 1097.2 |
| 27.5° | 5653.5 | 4960.1 | 3333.0 | 1745.3 | 1087.4 | 953.4 | 931.7 | 957.4 | 1026.3 | 1097.2 | 1111.0 |
| 30° | 5568.8 | 4773.0 | 2795.2 | 1254.9 | 906.1 | 835.2 | 845.1 | 890.4 | 994.8 | 1103.2 | 1132.7 |
| 32.5° | 5531.4 | 4621.3 | 2253.6 | 963.3 | 774.2 | 734.8 | 760.4 | 819.5 | 927.8 | 1036.1 | 1071.6 |
| 35° | 5566.8 | 4511.0 | 1753.1 | 799.7 | 677.6 | 648.0 | 677.6 | 738.7 | 809.7 | 862.8 | 884.4 |
| 37.5° | 5694.9 | 4471.6 | 1319.8 | 709.1 | 614.6 | 585.0 | 608.7 | 650.1 | 681.6 | 701.2 | 711.2 |
| 40° | 5964.7 | 4513.0 | 1034.2 | 661.8 | 579.1 | 545.6 | 551.6 | 571.2 | 592.9 | 608.7 | 610.7 |
| 42.5° | 6394.2 | 4648.9 | 919.9 | 644.2 | 557.5 | 514.1 | 504.3 | 518.1 | 541.8 | 563.3 | 567.3 |
| 45° | 6965.5 | 4875.4 | 908.1 | 650.1 | 547.6 | 488.6 | 468.8 | 482.6 | 514.1 | 549.6 | 555.5 |
| 47.5° | 7704.1 | 5233.9 | 963.3 | 681.6 | 553.5 | 474.8 | 445.2 | 459.0 | 500.3 | 547.6 | 555.5 |
| 50° | 8578.8 | 5730.4 | 1065.7 | 728.9 | 581.1 | 474.8 | 435.4 | 447.1 | 490.5 | 543.7 | 551.6 |
| 52.5° | 9609.0 | 6421.8 | 1172.1 | 776.1 | 620.5 | 492.4 | 439.3 | 437.3 | 476.7 | 526.0 | 535.8 |
| 55° | 10745.6 | 7280.6 | 1274.5 | 817.5 | 642.2 | 516.1 | 449.2 | 425.4 | 457.1 | 496.4 | 504.3 |
| 57.5° | 12083.2 | 8456.6 | 1453.7 | 856.9 | 654.0 | 533.9 | 460.9 | 413.7 | 431.4 | 459.0 | 464.9 |
| 60° | 13897.4 | 10184.2 | 1802.4 | 923.8 | 675.7 | 541.8 | 462.9 | 401.8 | 399.9 | 419.6 | 421.6 |
| 62.5° | 16263.2 | 12207.3 | 2135.3 | 1002.7 | 719.0 | 543.7 | 455.0 | 393.9 | 374.3 | 380.2 | 380.2 |
| 65° | 17945.5 | 12951.9 | 2038.8 | 1069.6 | 758.4 | 541.8 | 447.1 | 388.1 | 354.6 | 344.7 | 344.7 |
| 67.5° | 16988.1 | 11441.0 | 1731.5 | 1087.4 | 762.3 | 520.1 | 429.4 | 374.3 | 336.9 | 313.2 | 313.2 |
| 69° | 15581.7 | 10028.6 | 1589.7 | 1055.9 | 730.8 | 494.4 | 409.7 | 360.5 | 325.0 | 297.5 | 297.5 |
| 70° | 14435.2 | 8959.0 | 1503.0 | 1018.4 | 693.4 | 472.8 | 392.0 | 346.7 | 313.2 | 289.6 | 287.6 |
| 72.5° | 10777.2 | 5978.5 | 1284.3 | 878.5 | 569.3 | 399.9 | 342.8 | 309.2 | 281.7 | 266.0 | 266.0 |
| 75° | 5687.0 | 2996.1 | 1051.9 | 717.0 | 439.3 | 319.2 | 281.7 | 260.0 | 244.3 | 242.3 | 240.3 |
| 77.5° | 1863.5 | 1355.3 | 756.5 | 539.7 | 323.0 | 248.2 | 224.5 | 210.7 | 208.8 | 216.7 | 216.7 |
| 80° | 1006.6 | 809.7 | 486.5 | 364.4 | 224.5 | 185.2 | 173.4 | 171.3 | 177.3 | 189.1 | 189.1 |
| 82.5° | 488.6 | 399.9 | 289.6 | 224.5 | 153.6 | 136.0 | 136.0 | 137.9 | 145.8 | 159.6 | 159.6 |
| 85° | 210.7 | 189.1 | 167.5 | 126.0 | 94.5 | 84.7 | 96.6 | 106.4 | 112.3 | 122.1 | 126.0 |
| 87.5° | 100.5 | 88.7 | 76.8 | 49.2 | 41.3 | 43.4 | 51.2 | 63.0 | 74.9 | 82.8 | 84.7 |
| 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)