

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: INVUE

Report Number: P367554

Luminaire Tested: **MSA-SA2D-730-U-SL4**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P367554
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-20)
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: MSA-SA2D-730-U-SL4
Description: MESA POST TOP DECORATIVE LUMINAIRE. (2) 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: 11965 lumens
Efficiency: N/A
Efficacy: 92.8 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G3

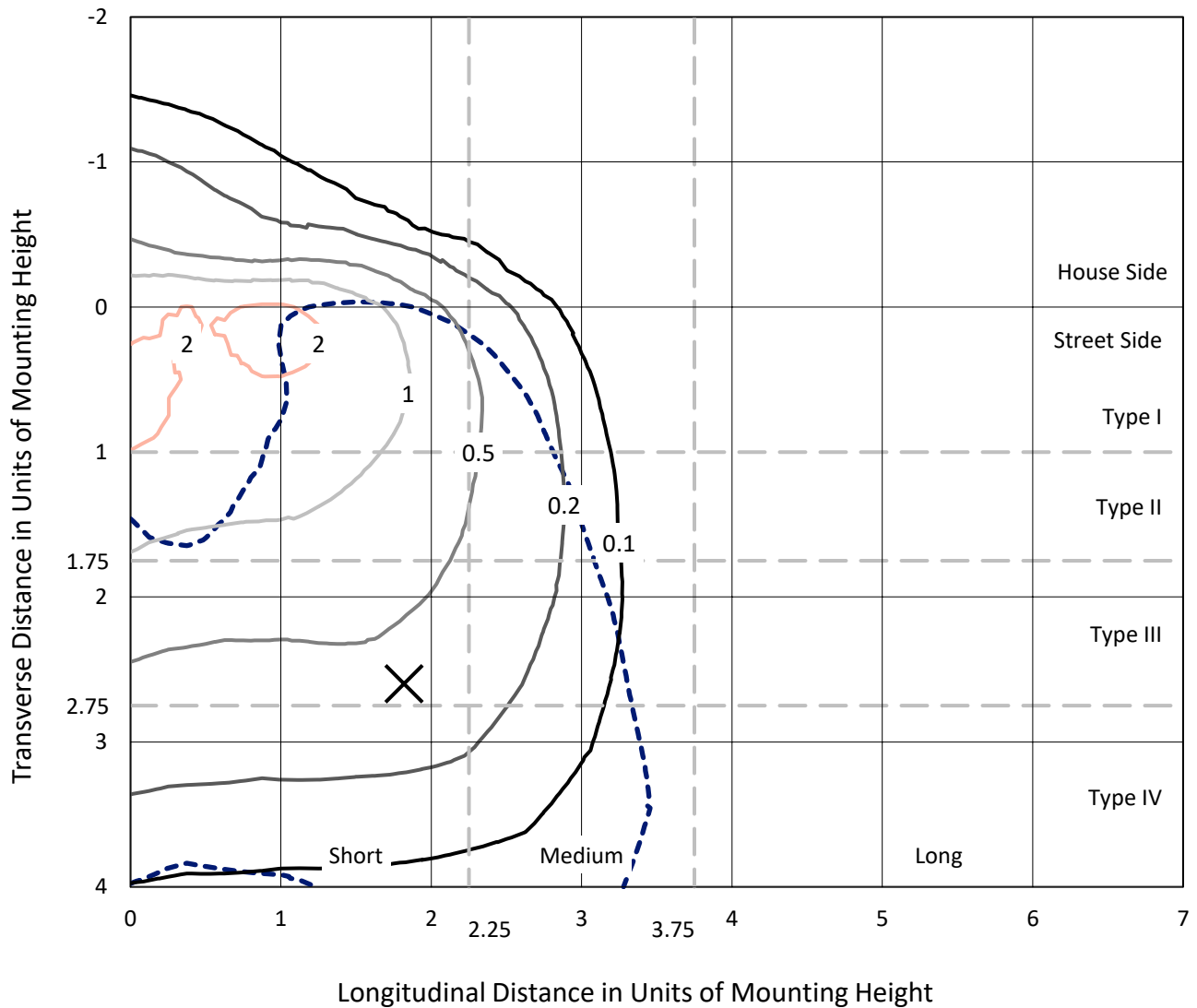
Input Watts (W): 129
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

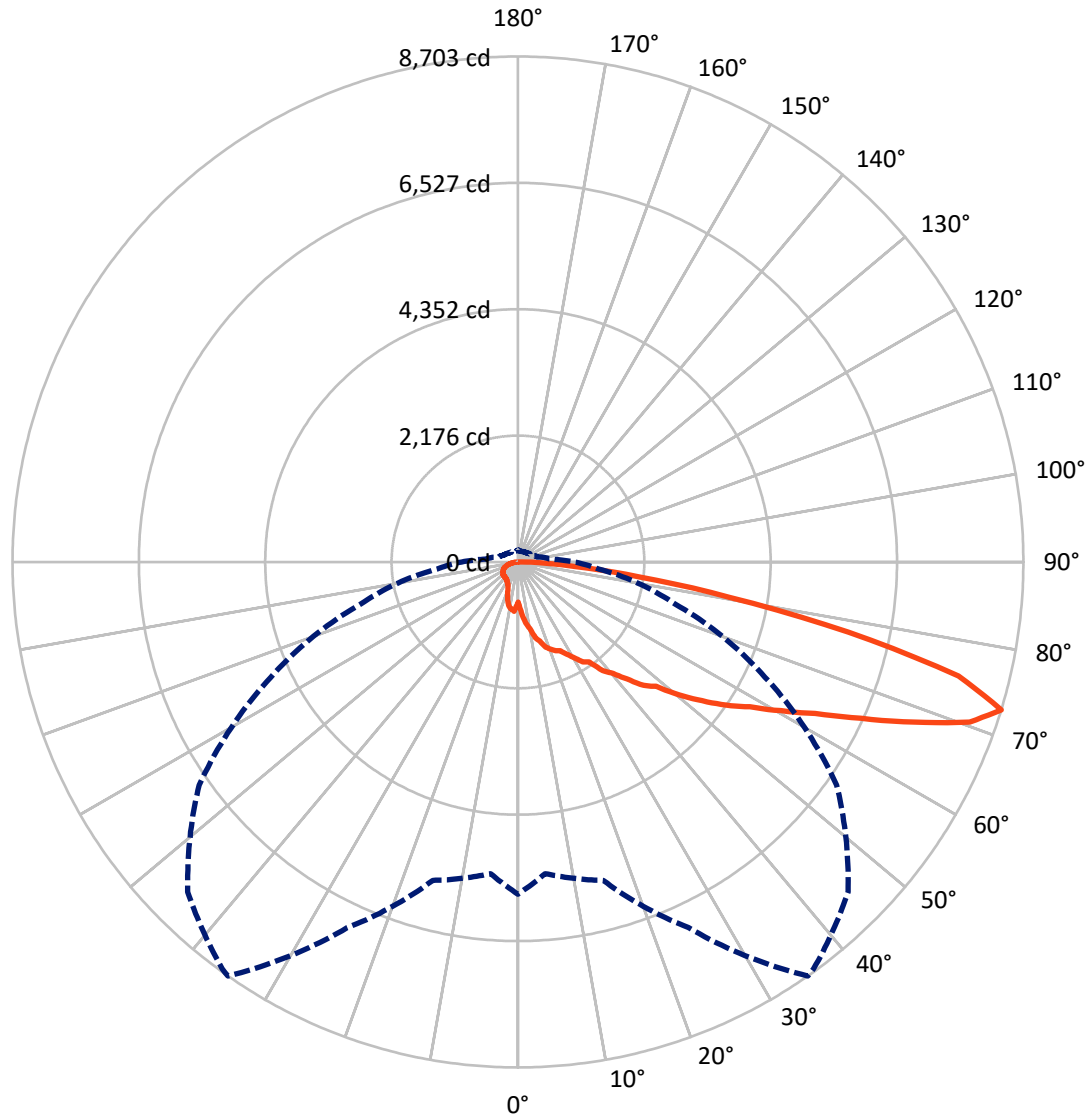
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 2.4 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 35-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1605.7 | 0.0 | 1605.7 |
| | % Fixture | 13.4 | 0.0 | 13.4 |
| Street Side | Lumens | 10359.3 | 0.0 | 10359.3 |
| | % Fixture | 86.6 | 0.0 | 86.6 |
| Total | Lumens | 11965.0 | 0.0 | 11965.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 91.9 | 0.8 |
| 10°-20° | 323.7 | 2.7 |
| 20°-30° | 562.5 | 4.7 |
| 30°-40° | 940.1 | 7.9 |
| 40°-50° | 1631.6 | 13.6 |
| 50°-60° | 2466.6 | 20.6 |
| 60°-70° | 3195.5 | 26.7 |
| 70°-80° | 2357.9 | 19.7 |
| 80°-90° | 395.2 | 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° | 11965.0 | 100.0 |
| 0°-180° | 11965.0 | 100.0 |

Coefficient of Utilization



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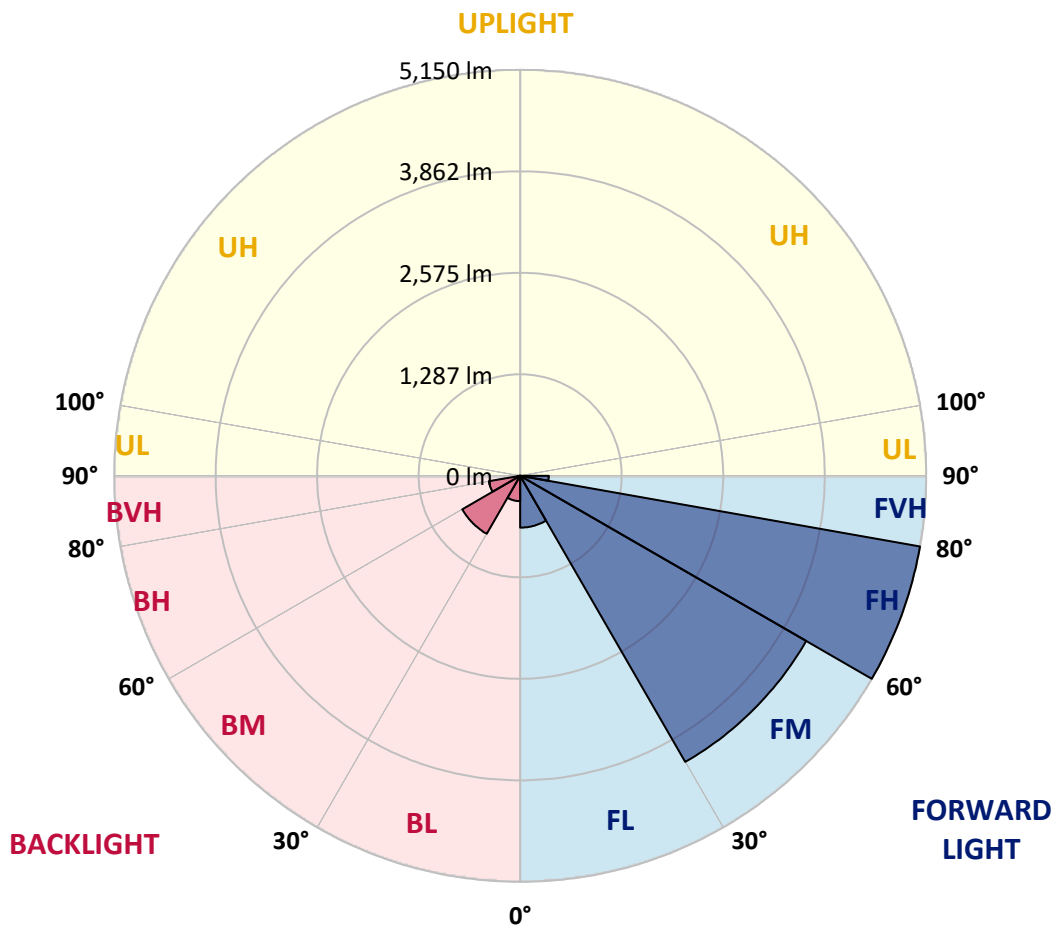
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 657.1 | 5.5 | | | |
| FM (30°-60°) | 4189.7 | 35.0 | | | |
| FH (60°-80°) | 5149.6 | 43.0 | | | G3/7500 |
| FVH (80°-90°) | 362.8 | 3.0 | | | G3/500 |
| BL (0°-30°) | 320.9 | 2.7 | B1/500 | | |
| BM (30°-60°) | 848.6 | 7.1 | B1/1000 | | |
| BH (60°-80°) | 403.8 | 3.4 | B1/500 | | G1/500 |
| BVH (80°-90°) | 32.3 | 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





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 36° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 |
| 2.5° | 862.5 | 821.2 | 785.4 | 783.9 | 817.1 | 829.9 | 824.8 | 813.5 | 800.2 | 772.2 | 833.4 |
| 5° | 1080.6 | 1021.4 | 1010.1 | 996.8 | 966.7 | 974.9 | 925.9 | 963.1 | 974.9 | 1002.0 | 1042.8 |
| 7.5° | 1209.3 | 1174.6 | 1147.5 | 1136.3 | 1084.2 | 1078.0 | 1041.8 | 1094.9 | 1117.4 | 1113.8 | 1174.6 |
| 10° | 1259.9 | 1228.2 | 1230.2 | 1193.5 | 1176.6 | 1183.8 | 1187.8 | 1188.9 | 1202.7 | 1213.9 | 1183.2 |
| 12.5° | 1285.9 | 1298.2 | 1343.1 | 1318.1 | 1339.5 | 1348.2 | 1391.1 | 1347.2 | 1348.7 | 1291.0 | 1322.7 |
| 15° | 1417.1 | 1447.8 | 1421.7 | 1420.7 | 1414.1 | 1428.4 | 1465.1 | 1435.5 | 1458.5 | 1440.1 | 1399.3 |
| 17.5° | 1575.5 | 1584.6 | 1534.6 | 1514.2 | 1540.7 | 1536.1 | 1526.9 | 1531.5 | 1474.3 | 1580.6 | 1530.5 |
| 20° | 1624.0 | 1660.2 | 1594.3 | 1514.2 | 1602.0 | 1613.8 | 1611.7 | 1591.8 | 1493.7 | 1646.9 | 1598.4 |
| 22.5° | 1764.9 | 1715.9 | 1663.8 | 1612.7 | 1657.7 | 1664.3 | 1653.1 | 1605.6 | 1572.9 | 1631.1 | 1669.4 |
| 25° | 1828.7 | 1817.0 | 1750.6 | 1744.5 | 1695.0 | 1671.5 | 1690.9 | 1677.1 | 1644.9 | 1748.6 | 1706.2 |
| 27.5° | 1974.8 | 1961.0 | 1808.3 | 1871.1 | 1799.1 | 1793.0 | 1690.4 | 1736.3 | 1768.5 | 1760.8 | 1824.2 |
| 30° | 2140.3 | 2156.1 | 1932.9 | 1995.7 | 1912.5 | 1901.3 | 1798.1 | 1856.3 | 1878.3 | 1885.4 | 1964.6 |
| 32.5° | 2324.1 | 2367.5 | 2145.9 | 2094.3 | 2049.9 | 2057.5 | 1970.2 | 1864.0 | 1949.3 | 2116.3 | 2150.5 |
| 35° | 2523.3 | 2541.2 | 2308.8 | 2231.2 | 2115.2 | 2107.1 | 2108.6 | 2121.9 | 2208.2 | 2398.7 | 2425.2 |
| 37.5° | 2891.5 | 2808.7 | 2605.0 | 2408.4 | 2369.6 | 2293.5 | 2345.0 | 2385.9 | 2472.2 | 2764.3 | 2875.6 |
| 40° | 3118.2 | 3056.9 | 2746.4 | 2632.6 | 2525.3 | 2532.5 | 2629.0 | 2628.5 | 2832.2 | 3133.5 | 3303.6 |
| 42.5° | 3328.1 | 3261.2 | 2968.6 | 2854.2 | 2752.6 | 2777.6 | 2805.2 | 2853.7 | 3244.4 | 3730.0 | 3807.6 |
| 45° | 3497.1 | 3350.6 | 3140.2 | 3114.6 | 3030.9 | 2997.7 | 3114.6 | 3192.3 | 3737.2 | 4212.6 | 4257.6 |
| 47.5° | 3612.0 | 3491.5 | 3285.7 | 3263.3 | 3201.5 | 3282.7 | 3601.8 | 3651.9 | 4119.2 | 4697.2 | 4693.7 |
| 50° | 3786.7 | 3621.8 | 3435.9 | 3424.1 | 3598.3 | 3641.7 | 4030.8 | 4025.7 | 4490.9 | 5099.7 | 5015.4 |
| 52.5° | 3987.9 | 3780.1 | 3578.3 | 3704.5 | 3970.0 | 3991.5 | 4329.0 | 4466.4 | 4896.9 | 5487.8 | 5267.7 |
| 55° | 4219.2 | 3986.9 | 3791.8 | 3960.3 | 4355.6 | 4292.3 | 4633.9 | 4969.4 | 5405.1 | 5896.8 | 5450.0 |
| 57.5° | 4505.7 | 4223.8 | 4066.0 | 4322.4 | 4707.5 | 4763.6 | 5070.6 | 5492.9 | 5814.1 | 6151.2 | 5582.8 |
| 60° | 4808.1 | 4477.1 | 4332.6 | 4576.7 | 5200.3 | 5264.6 | 5564.9 | 5928.0 | 6272.7 | 6390.7 | 5557.7 |
| 62.5° | 5096.6 | 4738.6 | 4607.9 | 4909.2 | 5746.7 | 5906.0 | 6127.7 | 6359.0 | 6654.2 | 6448.9 | 5254.9 |
| 65° | 5417.8 | 5059.3 | 4977.1 | 5429.1 | 6487.7 | 6646.0 | 6935.6 | 6866.1 | 6784.9 | 6242.6 | 4753.9 |
| 67.5° | 5757.9 | 5393.8 | 5409.1 | 6032.2 | 7361.5 | 7388.5 | 7833.3 | 7371.7 | 6631.2 | 5696.1 | 3912.8 |
| 70° | 5940.8 | 5568.0 | 5725.8 | 6675.1 | 8250.6 | 8211.8 | 8302.7 | 7507.5 | 6004.6 | 4502.7 | 2696.9 |
| 72.5° | 5719.1 | 5386.7 | 5675.7 | 6945.8 | 8703.0 | 8661.2 | 8039.1 | 6701.2 | 4694.7 | 2800.1 | 1398.2 |
| 75° | 4842.3 | 4521.6 | 4963.8 | 6191.5 | 7834.9 | 7873.7 | 6841.6 | 4983.2 | 2687.7 | 1126.1 | 580.6 |
| 77.5° | 3290.3 | 3124.9 | 3503.8 | 4615.0 | 5819.7 | 5954.0 | 5076.2 | 2913.9 | 1128.6 | 466.3 | 351.3 |
| 80° | 1738.9 | 1660.2 | 1940.1 | 2658.6 | 3685.1 | 3785.2 | 2984.9 | 1451.4 | 578.1 | 301.8 | 250.7 |
| 82.5° | 944.8 | 911.6 | 1061.7 | 1367.1 | 2093.8 | 2181.1 | 1547.9 | 964.2 | 389.6 | 189.0 | 153.2 |
| 85° | 634.8 | 622.0 | 721.6 | 734.4 | 990.2 | 1018.8 | 811.0 | 742.5 | 233.9 | 92.4 | 101.1 |
| 87.5° | 317.6 | 304.9 | 379.9 | 335.5 | 377.9 | 378.4 | 371.8 | 473.9 | 59.2 | 30.6 | 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 |



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CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 | 691.5 |
| 2.5° | 834.5 | 816.6 | 754.8 | 754.3 | 763.5 | 757.3 | 761.9 | 736.9 | 726.2 | 775.2 | 772.7 |
| 5° | 1037.2 | 983.6 | 932.0 | 914.1 | 893.2 | 847.7 | 850.3 | 850.8 | 843.1 | 872.2 | 874.3 |
| 7.5° | 1156.2 | 1091.8 | 1044.3 | 949.4 | 874.8 | 816.6 | 824.2 | 832.9 | 824.2 | 863.1 | 877.4 |
| 10° | 1173.5 | 1122.5 | 1065.8 | 960.1 | 910.5 | 857.9 | 804.8 | 757.9 | 752.2 | 734.4 | 740.0 |
| 12.5° | 1276.7 | 1234.3 | 1115.8 | 999.9 | 942.2 | 861.5 | 764.5 | 710.9 | 665.9 | 673.6 | 659.3 |
| 15° | 1361.5 | 1331.3 | 1189.4 | 1037.7 | 899.8 | 799.7 | 696.6 | 623.0 | 582.7 | 578.1 | 563.8 |
| 17.5° | 1476.4 | 1433.5 | 1196.0 | 1011.7 | 845.2 | 725.2 | 608.7 | 525.5 | 508.1 | 501.0 | 493.8 |
| 20° | 1531.5 | 1454.4 | 1172.0 | 930.0 | 781.3 | 636.3 | 521.9 | 450.4 | 445.3 | 458.1 | 455.5 |
| 22.5° | 1579.5 | 1471.8 | 1150.6 | 880.4 | 681.8 | 546.4 | 462.7 | 415.7 | 410.1 | 426.4 | 429.5 |
| 25° | 1607.6 | 1521.3 | 1127.1 | 829.9 | 620.0 | 479.5 | 418.2 | 391.7 | 392.7 | 414.2 | 411.6 |
| 27.5° | 1734.3 | 1538.7 | 1067.8 | 770.1 | 549.0 | 430.0 | 396.8 | 383.0 | 377.4 | 407.0 | 409.6 |
| 30° | 1813.9 | 1652.1 | 1054.6 | 706.8 | 496.4 | 393.7 | 377.4 | 371.8 | 370.8 | 406.5 | 409.1 |
| 32.5° | 1962.0 | 1689.8 | 1060.7 | 637.8 | 448.9 | 382.5 | 363.1 | 362.6 | 372.8 | 407.0 | 411.1 |
| 35° | 2167.3 | 1849.2 | 1031.1 | 598.5 | 422.8 | 365.1 | 351.9 | 355.9 | 373.3 | 410.6 | 416.2 |
| 37.5° | 2567.7 | 1999.3 | 1040.3 | 561.7 | 414.2 | 359.5 | 348.8 | 351.3 | 379.4 | 419.8 | 435.1 |
| 40° | 2884.8 | 2271.5 | 1026.0 | 543.4 | 402.4 | 358.5 | 342.2 | 352.4 | 378.9 | 424.9 | 438.7 |
| 42.5° | 3344.5 | 2488.6 | 1027.5 | 525.0 | 401.9 | 354.4 | 341.1 | 353.4 | 377.9 | 420.3 | 439.2 |
| 45° | 3738.7 | 2683.1 | 1049.5 | 514.3 | 396.8 | 361.1 | 339.6 | 354.9 | 371.3 | 403.9 | 424.9 |
| 47.5° | 4062.0 | 2900.2 | 1071.9 | 504.0 | 394.8 | 367.2 | 338.1 | 344.2 | 360.0 | 385.6 | 404.5 |
| 50° | 4325.5 | 3052.9 | 1100.5 | 502.0 | 394.8 | 364.1 | 334.0 | 333.5 | 346.8 | 367.2 | 385.1 |
| 52.5° | 4530.8 | 3160.6 | 1119.9 | 504.6 | 394.8 | 352.4 | 328.9 | 324.8 | 333.0 | 347.8 | 365.6 |
| 55° | 4679.4 | 3193.8 | 1104.1 | 511.2 | 394.2 | 341.6 | 319.7 | 316.1 | 320.2 | 330.4 | 347.3 |
| 57.5° | 4739.1 | 3106.5 | 1009.6 | 499.4 | 394.2 | 334.0 | 308.5 | 304.4 | 308.5 | 316.1 | 333.0 |
| 60° | 4589.5 | 2825.6 | 873.3 | 469.3 | 386.6 | 323.8 | 295.7 | 293.1 | 299.3 | 305.9 | 322.2 |
| 62.5° | 4214.1 | 2452.3 | 727.7 | 433.6 | 370.8 | 315.1 | 283.4 | 283.9 | 293.6 | 302.8 | 319.2 |
| 65° | 3630.9 | 2000.8 | 606.7 | 397.3 | 350.8 | 301.3 | 270.7 | 274.2 | 288.0 | 300.3 | 316.6 |
| 67.5° | 2857.3 | 1482.5 | 510.7 | 362.1 | 322.8 | 278.8 | 256.4 | 257.4 | 267.1 | 278.8 | 294.7 |
| 70° | 1909.9 | 943.2 | 419.8 | 320.7 | 286.0 | 249.7 | 234.4 | 230.8 | 228.3 | 238.5 | 252.3 |
| 72.5° | 968.8 | 557.2 | 344.7 | 274.2 | 246.1 | 218.1 | 206.3 | 197.1 | 190.0 | 196.1 | 206.8 |
| 75° | 507.6 | 389.6 | 278.3 | 227.8 | 203.3 | 185.4 | 176.7 | 164.4 | 159.3 | 162.9 | 170.6 |
| 77.5° | 359.0 | 304.9 | 225.2 | 180.3 | 165.5 | 147.1 | 148.6 | 135.8 | 131.8 | 133.8 | 142.0 |
| 80° | 275.8 | 241.6 | 173.1 | 136.4 | 127.7 | 109.8 | 114.9 | 107.2 | 102.1 | 101.1 | 107.2 |
| 82.5° | 187.9 | 181.8 | 123.1 | 95.5 | 89.4 | 76.6 | 83.8 | 80.7 | 74.0 | 70.0 | 73.0 |
| 85° | 126.6 | 120.5 | 75.1 | 55.2 | 52.6 | 39.8 | 51.1 | 49.0 | 43.4 | 37.3 | 37.8 |
| 87.5° | 22.0 | 40.3 | 21.4 | 13.8 | 12.8 | 4.6 | 11.7 | 11.2 | 10.2 | 5.1 | 4.1 |
| 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)