

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: P367939

Luminaire Tested: **MSA-SA3C-727-U-T4W-HSS**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P367939
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-15)
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: MSA-SA3C-727-U-T4W-HSS
Description: MESA POST TOP DECORATIVE LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11478 lumens
Efficiency: N/A
Efficacy: 69.1 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G3

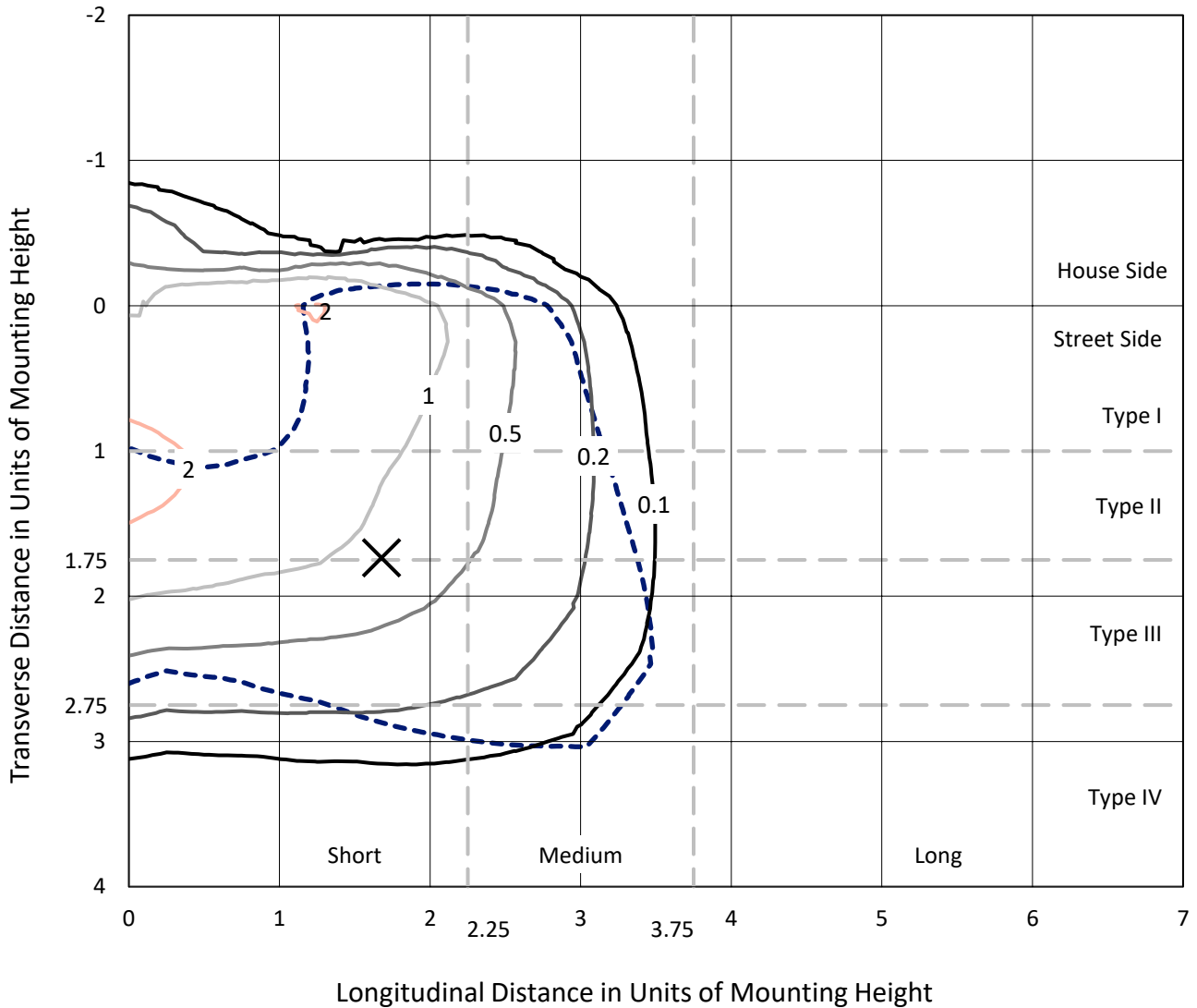
Input Watts (W): 166
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

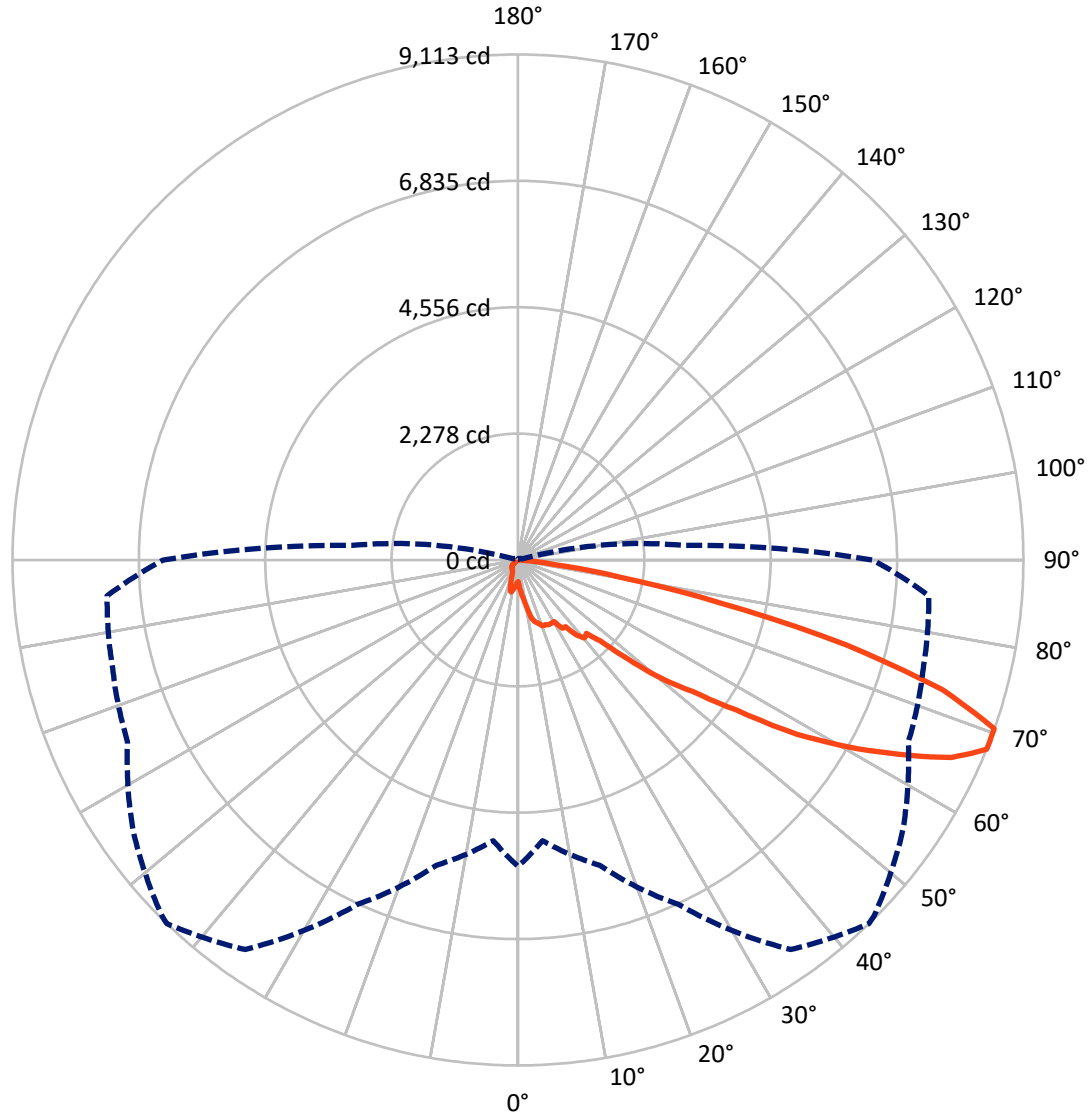
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 2.7 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 44-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1165.9 | 0.0 | 1165.9 |
| | % Fixture | 10.2 | 0.0 | 10.2 |
| Street Side | Lumens | 10312.1 | 0.0 | 10312.1 |
| | % Fixture | 89.8 | 0.0 | 89.8 |
| Total | Lumens | 11478.0 | 0.0 | 11478.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 57.3 | 0.5 |
| 10°-20° | 240.0 | 2.1 |
| 20°-30° | 425.1 | 3.7 |
| 30°-40° | 691.0 | 6.0 |
| 40°-50° | 1382.7 | 12.0 |
| 50°-60° | 2836.6 | 24.7 |
| 60°-70° | 3896.6 | 33.9 |
| 70°-80° | 1831.5 | 16.0 |
| 80°-90° | 117.3 | 1.0 |
| 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° | 11478.0 | 100.0 |
| 0°-180° | 11478.0 | 100.0 |

Coefficient of Utilization

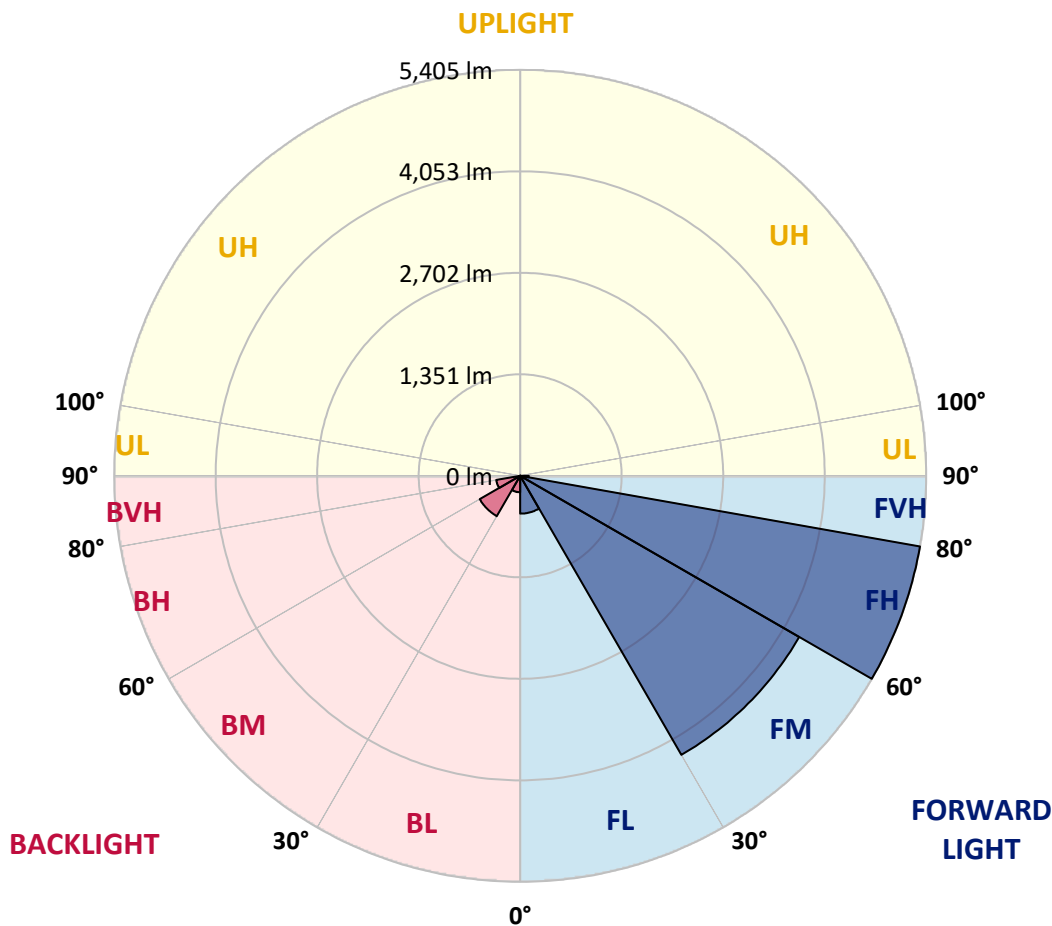


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 503.5 | 4.4 | | | |
| FM (30°-60°) | 4289.1 | 37.4 | | | |
| FH (60°-80°) | 5404.6 | 47.1 | | | G3/7500 |
| FVH (80°-90°) | 114.9 | 1.0 | | | G2/225 |
| BL (0°-30°) | 218.9 | 1.9 | B1/500 | | |
| BM (30°-60°) | 621.1 | 5.4 | B1/1000 | | |
| BH (60°-80°) | 323.5 | 2.8 | B1/500 | | G1/500 |
| BVH (80°-90°) | 2.4 | 0.0 | | | G0/10 |
| 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° | 44° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 |
| 2.5° | 491.8 | 476.0 | 453.2 | 458.2 | 460.8 | 467.7 | 468.4 | 459.5 | 434.2 | 427.2 | 458.2 |
| 5° | 689.3 | 650.6 | 643.7 | 629.1 | 600.0 | 584.2 | 580.4 | 596.2 | 576.0 | 569.6 | 577.9 |
| 7.5° | 880.4 | 847.5 | 811.4 | 791.8 | 731.0 | 693.7 | 691.8 | 698.1 | 701.9 | 679.8 | 691.2 |
| 10° | 1007.6 | 971.5 | 963.9 | 917.7 | 865.2 | 856.3 | 852.5 | 828.5 | 808.9 | 792.4 | 737.4 |
| 12.5° | 1122.8 | 1122.2 | 1136.1 | 1069.6 | 1061.4 | 1070.3 | 1067.1 | 981.0 | 961.4 | 892.4 | 876.6 |
| 15° | 1276.0 | 1313.9 | 1253.8 | 1198.1 | 1127.2 | 1157.6 | 1149.4 | 1094.3 | 1081.0 | 1034.2 | 966.5 |
| 17.5° | 1434.8 | 1445.0 | 1344.3 | 1258.9 | 1240.5 | 1200.7 | 1208.9 | 1189.3 | 1122.2 | 1159.5 | 1092.4 |
| 20° | 1438.6 | 1460.8 | 1353.2 | 1212.0 | 1268.4 | 1266.5 | 1267.1 | 1248.1 | 1159.5 | 1246.9 | 1185.5 |
| 22.5° | 1491.8 | 1437.4 | 1337.4 | 1247.5 | 1257.6 | 1267.1 | 1277.2 | 1253.8 | 1234.8 | 1256.4 | 1267.7 |
| 25° | 1470.3 | 1448.8 | 1352.6 | 1293.1 | 1283.6 | 1291.2 | 1293.7 | 1323.4 | 1311.4 | 1363.3 | 1334.8 |
| 27.5° | 1526.0 | 1495.0 | 1322.8 | 1333.6 | 1300.0 | 1291.2 | 1276.0 | 1375.3 | 1410.8 | 1369.6 | 1445.6 |
| 30° | 1621.6 | 1617.1 | 1374.1 | 1389.9 | 1364.0 | 1286.1 | 1326.6 | 1456.4 | 1500.7 | 1475.3 | 1567.8 |
| 32.5° | 1770.9 | 1786.1 | 1524.1 | 1421.5 | 1434.8 | 1469.6 | 1454.5 | 1456.4 | 1568.4 | 1624.7 | 1698.1 |
| 35° | 1983.0 | 1974.7 | 1670.3 | 1541.8 | 1472.2 | 1477.9 | 1499.4 | 1602.6 | 1747.5 | 1743.7 | 1821.6 |
| 37.5° | 2399.4 | 2309.5 | 1929.2 | 1664.6 | 1685.5 | 1714.0 | 1698.1 | 1836.7 | 1850.7 | 1855.7 | 2041.8 |
| 40° | 3013.4 | 2893.7 | 2337.4 | 1923.5 | 1722.2 | 1848.1 | 1840.5 | 1874.7 | 1967.8 | 2002.6 | 2274.1 |
| 42.5° | 3822.2 | 3661.5 | 3055.8 | 2399.4 | 1899.4 | 1812.7 | 1859.5 | 1924.1 | 2236.8 | 2336.1 | 2633.6 |
| 45° | 4715.9 | 4390.6 | 3772.2 | 3077.9 | 2343.7 | 2074.7 | 2110.2 | 2230.4 | 2664.0 | 2828.5 | 3157.0 |
| 47.5° | 5295.0 | 5009.0 | 4481.7 | 3679.2 | 2807.0 | 2665.9 | 2669.0 | 2695.0 | 3165.9 | 3471.0 | 3911.5 |
| 50° | 5798.2 | 5493.8 | 5004.5 | 4307.7 | 3626.7 | 3359.6 | 3298.8 | 3179.2 | 3805.1 | 4222.2 | 4710.9 |
| 52.5° | 6508.4 | 6152.7 | 5527.3 | 5045.0 | 4561.5 | 3932.4 | 3910.8 | 3951.3 | 4558.9 | 4997.6 | 5530.5 |
| 55° | 7148.9 | 6716.6 | 6119.7 | 5815.9 | 5627.3 | 4774.1 | 4792.5 | 4860.2 | 5526.7 | 5759.0 | 6259.6 |
| 57.5° | 7431.8 | 6963.4 | 6656.5 | 6519.7 | 6419.1 | 5924.2 | 5862.1 | 5821.6 | 6290.0 | 6378.6 | 7023.6 |
| 60° | 7617.2 | 7171.7 | 7032.4 | 7064.1 | 7369.1 | 6843.8 | 6787.5 | 6552.0 | 6921.7 | 6994.4 | 7708.4 |
| 62.5° | 7500.1 | 7093.8 | 7123.6 | 7387.5 | 8064.7 | 7719.1 | 7556.5 | 7162.8 | 7438.1 | 7497.0 | 8200.2 |
| 65° | 6762.8 | 6339.4 | 6721.7 | 7360.3 | 8595.1 | 8586.9 | 8511.6 | 7726.7 | 7724.2 | 7799.5 | 8238.1 |
| 67.5° | 5524.2 | 5079.8 | 5698.2 | 6850.1 | 8573.0 | 9112.8 | 9077.4 | 8474.8 | 7765.3 | 7564.1 | 7434.3 |
| 70° | 3840.6 | 3455.1 | 4156.4 | 5657.1 | 7809.0 | 9109.0 | 9052.1 | 8977.4 | 7440.0 | 6510.9 | 5764.0 |
| 72.5° | 1995.6 | 1783.6 | 2436.8 | 3898.2 | 6224.8 | 8003.3 | 8191.3 | 8068.5 | 6352.7 | 4730.5 | 3394.4 |
| 75° | 677.9 | 608.2 | 1005.1 | 2069.0 | 4138.1 | 6111.5 | 6331.8 | 6207.1 | 4314.6 | 2538.0 | 1342.4 |
| 77.5° | 262.7 | 244.3 | 360.1 | 839.9 | 2076.0 | 3724.1 | 3963.4 | 3836.2 | 2314.0 | 929.8 | 315.8 |
| 80° | 149.4 | 144.3 | 198.7 | 378.5 | 915.2 | 1852.6 | 2020.9 | 1832.9 | 834.2 | 313.3 | 82.3 |
| 82.5° | 63.3 | 65.2 | 110.8 | 204.4 | 460.1 | 653.8 | 729.1 | 665.2 | 349.4 | 214.6 | 30.4 |
| 85° | 13.9 | 17.1 | 52.5 | 113.9 | 193.0 | 186.7 | 195.6 | 217.1 | 214.6 | 157.6 | 13.3 |
| 87.5° | 0.0 | 0.0 | 16.5 | 31.0 | 46.2 | 30.4 | 24.1 | 42.4 | 65.8 | 63.3 | 5.7 |
| 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° | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 | 386.7 |
| 2.5° | 463.9 | 457.6 | 417.7 | 415.2 | 417.7 | 410.8 | 410.1 | 395.6 | 396.8 | 429.8 | 432.3 |
| 5° | 577.9 | 546.2 | 512.0 | 501.3 | 491.1 | 468.4 | 481.0 | 481.0 | 481.0 | 501.9 | 508.2 |
| 7.5° | 681.0 | 638.6 | 590.5 | 550.0 | 510.8 | 482.3 | 501.9 | 515.8 | 524.1 | 551.3 | 563.9 |
| 10° | 727.9 | 686.1 | 643.1 | 585.5 | 555.1 | 544.3 | 521.5 | 509.5 | 524.1 | 518.4 | 525.3 |
| 12.5° | 827.9 | 789.9 | 715.8 | 656.3 | 633.6 | 596.8 | 529.8 | 482.9 | 451.9 | 446.8 | 445.6 |
| 15° | 925.3 | 901.9 | 802.5 | 722.8 | 643.7 | 558.9 | 444.3 | 382.3 | 349.4 | 343.7 | 344.3 |
| 17.5° | 1048.8 | 1015.2 | 869.0 | 754.4 | 620.3 | 467.7 | 343.0 | 289.9 | 287.3 | 301.3 | 302.5 |
| 20° | 1131.0 | 1076.0 | 902.5 | 728.5 | 543.0 | 353.8 | 268.4 | 255.7 | 276.0 | 301.3 | 298.7 |
| 22.5° | 1209.5 | 1150.0 | 946.9 | 705.7 | 420.9 | 268.4 | 246.8 | 248.1 | 265.2 | 292.4 | 299.4 |
| 25° | 1261.4 | 1239.9 | 1001.3 | 652.5 | 320.9 | 232.3 | 236.1 | 245.6 | 260.1 | 286.1 | 286.1 |
| 27.5° | 1417.7 | 1317.1 | 995.0 | 549.4 | 246.8 | 216.5 | 225.3 | 237.3 | 244.9 | 276.0 | 279.1 |
| 30° | 1512.7 | 1479.8 | 1027.9 | 444.3 | 216.5 | 196.2 | 213.3 | 224.1 | 229.1 | 264.6 | 265.8 |
| 32.5° | 1629.1 | 1556.4 | 1067.7 | 327.9 | 201.3 | 194.9 | 191.1 | 199.4 | 213.9 | 244.9 | 246.8 |
| 35° | 1770.9 | 1749.4 | 1010.8 | 257.6 | 196.2 | 182.3 | 174.7 | 179.1 | 188.6 | 209.5 | 213.9 |
| 37.5° | 2060.2 | 1932.3 | 976.6 | 220.9 | 196.2 | 177.9 | 169.6 | 158.2 | 159.5 | 174.1 | 182.3 |
| 40° | 2303.8 | 2264.6 | 881.0 | 214.6 | 187.3 | 171.5 | 151.3 | 137.3 | 127.9 | 132.3 | 135.4 |
| 42.5° | 2751.3 | 2569.7 | 757.6 | 211.4 | 179.1 | 155.1 | 128.5 | 113.9 | 99.4 | 100.6 | 105.7 |
| 45° | 3294.4 | 2902.6 | 647.5 | 208.2 | 173.4 | 138.6 | 108.2 | 91.1 | 76.0 | 76.6 | 81.6 |
| 47.5° | 4019.7 | 3388.0 | 513.9 | 198.7 | 163.3 | 123.4 | 87.3 | 69.6 | 60.8 | 62.7 | 67.1 |
| 50° | 4843.8 | 3814.0 | 406.3 | 184.2 | 151.3 | 108.9 | 70.9 | 56.3 | 53.2 | 55.1 | 60.1 |
| 52.5° | 5579.9 | 4127.9 | 335.4 | 170.9 | 134.2 | 88.6 | 59.5 | 50.0 | 48.7 | 50.0 | 53.8 |
| 55° | 6234.3 | 4310.2 | 280.4 | 155.7 | 115.2 | 71.5 | 53.8 | 46.2 | 45.6 | 44.9 | 47.5 |
| 57.5° | 6848.2 | 4362.7 | 219.0 | 131.6 | 93.7 | 62.0 | 50.0 | 43.0 | 41.8 | 39.9 | 41.8 |
| 60° | 7295.7 | 4272.9 | 160.8 | 105.7 | 76.6 | 56.3 | 46.8 | 38.6 | 36.7 | 33.5 | 34.8 |
| 62.5° | 7511.5 | 4026.7 | 121.5 | 84.8 | 65.2 | 51.3 | 41.8 | 33.5 | 31.0 | 27.2 | 27.8 |
| 65° | 7306.5 | 3621.0 | 95.6 | 71.5 | 55.7 | 43.0 | 35.4 | 28.5 | 25.3 | 21.5 | 21.5 |
| 67.5° | 6398.2 | 3003.9 | 81.0 | 62.0 | 46.8 | 36.7 | 29.1 | 25.9 | 20.9 | 17.7 | 17.1 |
| 70° | 4696.3 | 2160.8 | 69.6 | 54.4 | 40.5 | 31.6 | 24.7 | 23.4 | 20.3 | 17.1 | 15.8 |
| 72.5° | 2650.7 | 1222.8 | 59.5 | 48.1 | 34.2 | 26.6 | 20.9 | 21.5 | 19.6 | 15.8 | 14.6 |
| 75° | 1011.4 | 412.0 | 49.4 | 39.9 | 27.8 | 20.3 | 17.7 | 17.7 | 17.7 | 13.3 | 11.4 |
| 77.5° | 250.6 | 105.1 | 39.2 | 32.3 | 22.2 | 13.3 | 14.6 | 15.2 | 15.2 | 11.4 | 8.2 |
| 80° | 69.0 | 35.4 | 23.4 | 23.4 | 15.8 | 7.6 | 10.1 | 10.1 | 8.2 | 3.8 | 0.0 |
| 82.5° | 25.3 | 13.3 | 8.2 | 10.1 | 7.0 | 2.5 | 3.8 | 2.5 | 1.9 | 0.0 | 0.0 |
| 85° | 10.8 | 7.0 | 5.1 | 5.7 | 3.2 | 0.0 | 0.6 | 1.3 | 0.0 | 0.0 | 0.0 |
| 87.5° | 4.4 | 3.2 | 2.5 | 2.5 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 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)