

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: P366696

Luminaire Tested: **MSA-SA1A-760-U-SL4**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P366696
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-SA1A-760-U-SL4
Description: MESA POST TOP DECORATIVE LUMINAIRE. (1) 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: 3936 lumens
Efficiency: N/A
Efficacy: 115.8 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G2

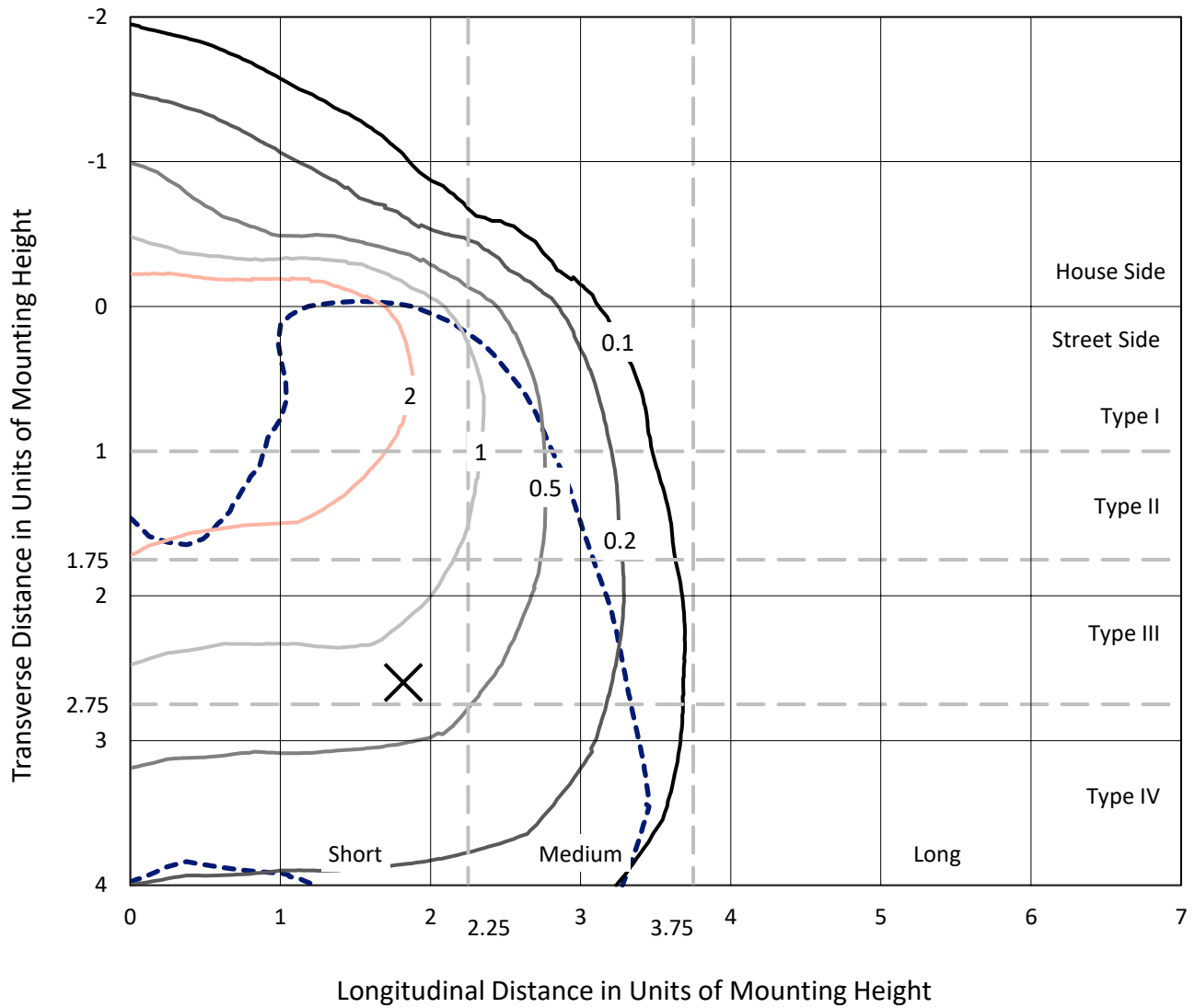
Input Watts (W): 34
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Iso-Footcandle Lines of Horizontal Illumination

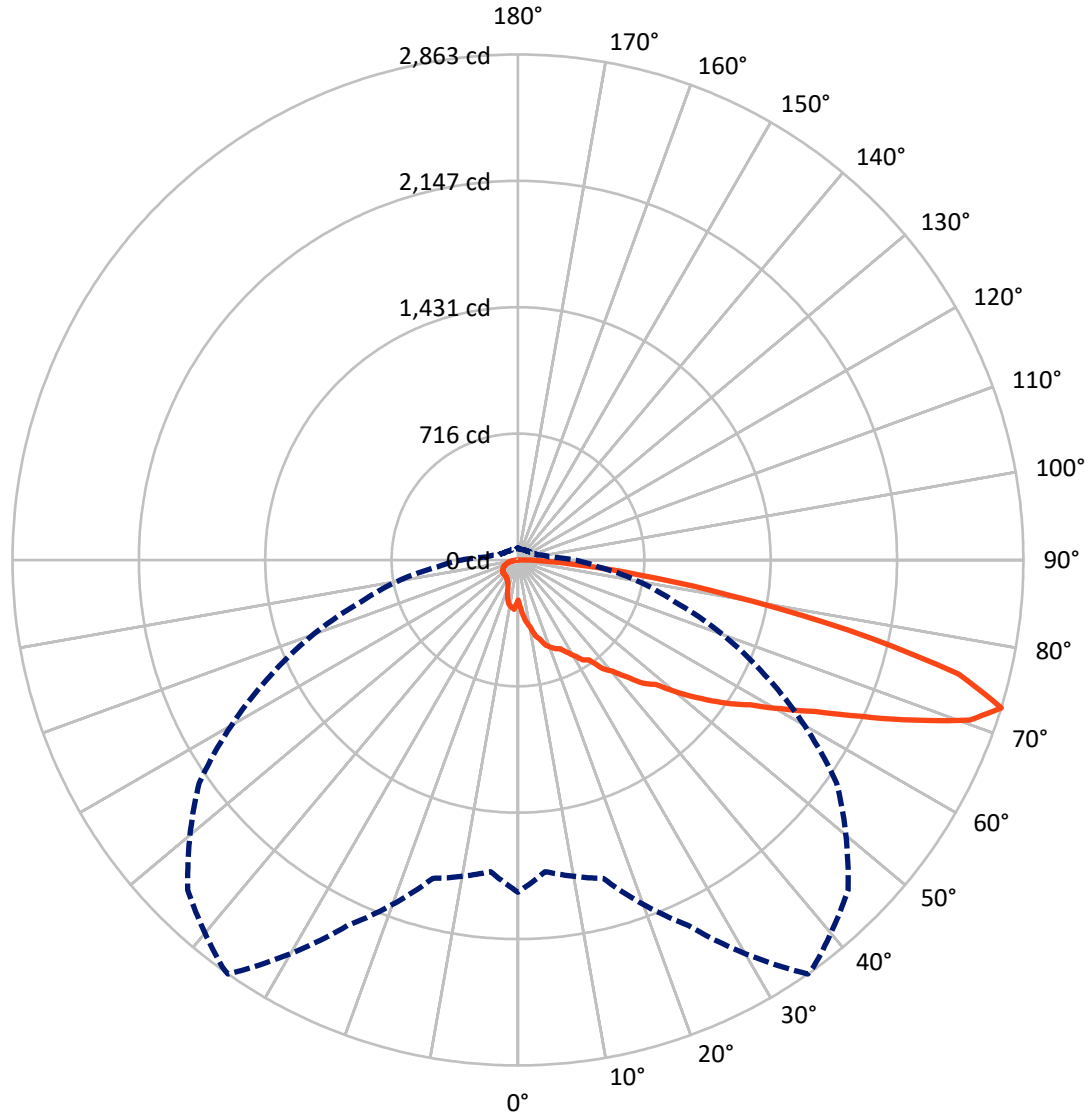
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 4.9 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 | 528.2 | 0.0 | 528.2 |
| | % Fixture | 13.4 | 0.0 | 13.4 |
| Street Side | Lumens | 3407.8 | 0.0 | 3407.8 |
| | % Fixture | 86.6 | 0.0 | 86.6 |
| Total | Lumens | 3936.0 | 0.0 | 3936.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 30.2 | 0.8 |
| 10°-20° | 106.5 | 2.7 |
| 20°-30° | 185.0 | 4.7 |
| 30°-40° | 309.2 | 7.9 |
| 40°-50° | 536.7 | 13.6 |
| 50°-60° | 811.4 | 20.6 |
| 60°-70° | 1051.2 | 26.7 |
| 70°-80° | 775.7 | 19.7 |
| 80°-90° | 130.0 | 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° | 3936.0 | 100.0 |
| 0°-180° | 3936.0 | 100.0 |

Coefficient of Utilization



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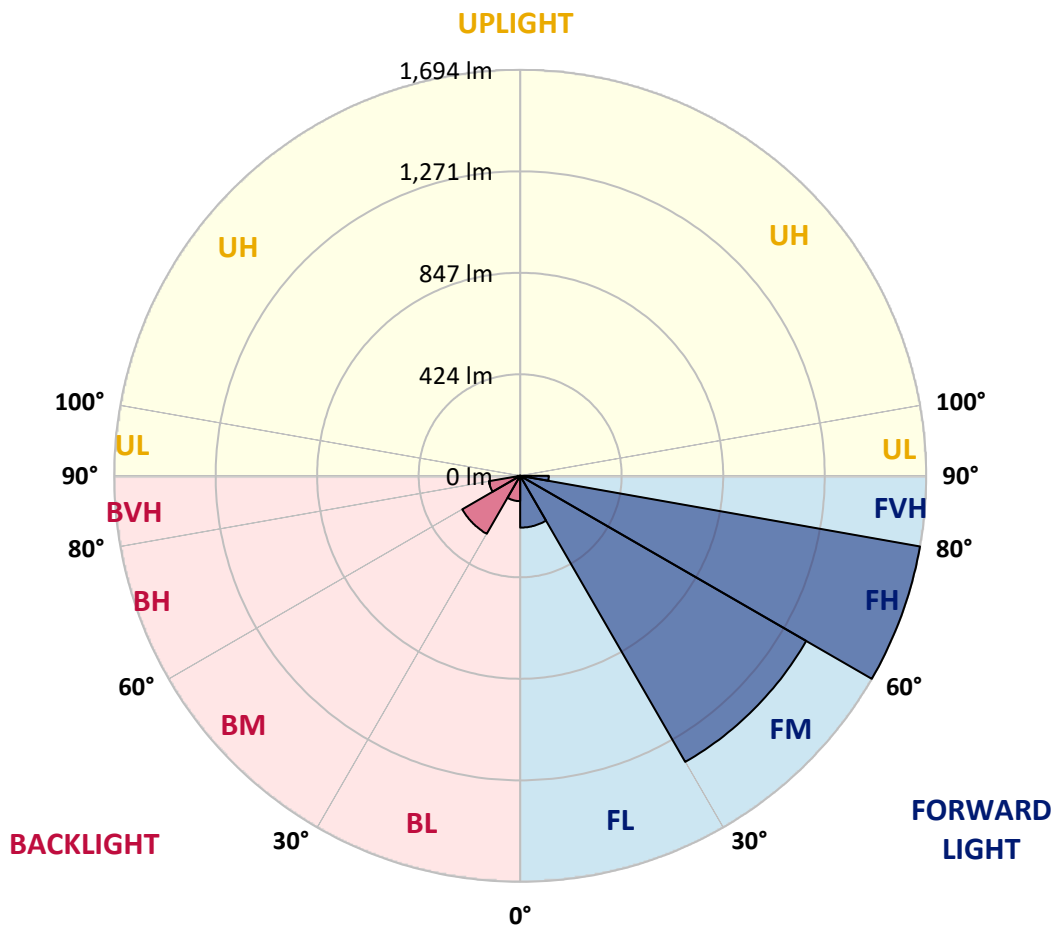
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 216.2 | 5.5 | | | |
| FM (30°-60°) | 1378.3 | 35.0 | | | |
| FH (60°-80°) | 1694.0 | 43.0 | | | G1/1800 |
| FVH (80°-90°) | 119.4 | 3.0 | | | G2/225 |
| BL (0°-30°) | 105.6 | 2.7 | B0/110 | | |
| BM (30°-60°) | 279.2 | 7.1 | B1/1000 | | |
| BH (60°-80°) | 132.8 | 3.4 | B1/500 | | G1/500 |
| BVH (80°-90°) | 10.6 | 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-G2

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 36° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 |
| 2.5° | 283.7 | 270.1 | 258.4 | 257.9 | 268.8 | 273.0 | 271.3 | 267.6 | 263.2 | 254.0 | 274.2 |
| 5° | 355.5 | 336.0 | 332.3 | 327.9 | 318.0 | 320.7 | 304.6 | 316.8 | 320.7 | 329.6 | 343.0 |
| 7.5° | 397.8 | 386.4 | 377.5 | 373.8 | 356.7 | 354.6 | 342.7 | 360.2 | 367.6 | 366.4 | 386.4 |
| 10° | 414.4 | 404.0 | 404.7 | 392.6 | 387.1 | 389.4 | 390.8 | 391.1 | 395.6 | 399.3 | 389.2 |
| 12.5° | 423.0 | 427.0 | 441.8 | 433.6 | 440.6 | 443.5 | 457.6 | 443.2 | 443.7 | 424.7 | 435.1 |
| 15° | 466.2 | 476.3 | 467.7 | 467.4 | 465.2 | 469.9 | 482.0 | 472.2 | 479.8 | 473.7 | 460.3 |
| 17.5° | 518.3 | 521.3 | 504.8 | 498.1 | 506.8 | 505.3 | 502.3 | 503.8 | 485.0 | 519.9 | 503.5 |
| 20° | 534.2 | 546.1 | 524.5 | 498.1 | 527.0 | 530.9 | 530.2 | 523.6 | 491.4 | 541.8 | 525.8 |
| 22.5° | 580.6 | 564.5 | 547.3 | 530.5 | 545.3 | 547.5 | 543.8 | 528.2 | 517.4 | 536.6 | 549.2 |
| 25° | 601.6 | 597.7 | 575.9 | 573.9 | 557.6 | 549.8 | 556.2 | 551.7 | 541.1 | 575.2 | 561.3 |
| 27.5° | 649.6 | 645.1 | 594.9 | 615.5 | 591.8 | 589.8 | 556.1 | 571.2 | 581.8 | 579.2 | 600.1 |
| 30° | 704.1 | 709.3 | 635.9 | 656.5 | 629.1 | 625.4 | 591.5 | 610.7 | 617.9 | 620.2 | 646.3 |
| 32.5° | 764.5 | 778.8 | 705.9 | 688.9 | 674.3 | 676.8 | 648.1 | 613.2 | 641.2 | 696.2 | 707.4 |
| 35° | 830.1 | 835.9 | 759.5 | 734.0 | 695.8 | 693.1 | 693.6 | 698.0 | 726.4 | 789.1 | 797.8 |
| 37.5° | 951.2 | 924.0 | 856.9 | 792.3 | 779.5 | 754.5 | 771.4 | 784.9 | 813.3 | 909.3 | 946.0 |
| 40° | 1025.8 | 1005.6 | 903.5 | 866.0 | 830.7 | 833.1 | 864.8 | 864.7 | 931.7 | 1030.8 | 1086.7 |
| 42.5° | 1094.8 | 1072.8 | 976.5 | 938.9 | 905.5 | 913.7 | 922.8 | 938.7 | 1067.3 | 1227.0 | 1252.6 |
| 45° | 1150.4 | 1102.2 | 1033.0 | 1024.6 | 997.0 | 986.1 | 1024.6 | 1050.1 | 1229.4 | 1385.8 | 1400.6 |
| 47.5° | 1188.2 | 1148.6 | 1080.9 | 1073.5 | 1053.2 | 1079.9 | 1184.9 | 1201.3 | 1355.0 | 1545.2 | 1544.0 |
| 50° | 1245.7 | 1191.4 | 1130.3 | 1126.4 | 1183.7 | 1198.0 | 1326.0 | 1324.3 | 1477.3 | 1677.6 | 1649.9 |
| 52.5° | 1311.9 | 1243.5 | 1177.1 | 1218.6 | 1306.0 | 1313.0 | 1424.1 | 1469.3 | 1610.9 | 1805.3 | 1732.9 |
| 55° | 1388.0 | 1311.5 | 1247.4 | 1302.8 | 1432.8 | 1412.0 | 1524.4 | 1634.7 | 1778.0 | 1939.8 | 1792.8 |
| 57.5° | 1482.2 | 1389.5 | 1337.6 | 1421.9 | 1548.6 | 1567.0 | 1668.0 | 1806.9 | 1912.6 | 2023.5 | 1836.5 |
| 60° | 1581.7 | 1472.8 | 1425.3 | 1505.6 | 1710.7 | 1731.8 | 1830.6 | 1950.1 | 2063.5 | 2102.3 | 1828.3 |
| 62.5° | 1676.6 | 1558.8 | 1515.8 | 1614.9 | 1890.4 | 1942.8 | 2015.8 | 2091.9 | 2189.0 | 2121.4 | 1728.7 |
| 65° | 1782.2 | 1664.3 | 1637.3 | 1785.9 | 2134.2 | 2186.3 | 2281.5 | 2258.7 | 2232.0 | 2053.6 | 1563.9 |
| 67.5° | 1894.1 | 1774.3 | 1779.4 | 1984.3 | 2421.6 | 2430.5 | 2576.9 | 2425.0 | 2181.4 | 1873.8 | 1287.2 |
| 70° | 1954.3 | 1831.6 | 1883.5 | 2195.8 | 2714.1 | 2701.3 | 2731.2 | 2469.7 | 1975.3 | 1481.2 | 887.2 |
| 72.5° | 1881.4 | 1772.0 | 1867.1 | 2284.9 | 2862.9 | 2849.2 | 2644.6 | 2204.4 | 1544.4 | 921.1 | 460.0 |
| 75° | 1592.9 | 1487.4 | 1632.9 | 2036.8 | 2577.4 | 2590.1 | 2250.6 | 1639.3 | 884.1 | 370.4 | 191.0 |
| 77.5° | 1082.4 | 1028.0 | 1152.6 | 1518.2 | 1914.5 | 1958.6 | 1669.9 | 958.6 | 371.3 | 153.4 | 115.6 |
| 80° | 572.0 | 546.1 | 638.2 | 874.6 | 1212.2 | 1245.2 | 981.9 | 477.4 | 190.2 | 99.3 | 82.5 |
| 82.5° | 310.8 | 299.9 | 349.3 | 449.7 | 688.8 | 717.5 | 509.2 | 317.2 | 128.2 | 62.2 | 50.4 |
| 85° | 208.8 | 204.6 | 237.4 | 241.6 | 325.7 | 335.1 | 266.8 | 244.3 | 76.9 | 30.4 | 33.3 |
| 87.5° | 104.5 | 100.3 | 125.0 | 110.4 | 124.3 | 124.5 | 122.3 | 155.9 | 19.5 | 10.1 | 6.0 |
| 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° | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 | 227.5 |
| 2.5° | 274.5 | 268.6 | 248.3 | 248.1 | 251.2 | 249.1 | 250.6 | 242.4 | 238.9 | 255.0 | 254.2 |
| 5° | 341.2 | 323.6 | 306.6 | 300.7 | 293.8 | 278.9 | 279.7 | 279.9 | 277.4 | 286.9 | 287.6 |
| 7.5° | 380.3 | 359.2 | 343.5 | 312.3 | 287.8 | 268.6 | 271.1 | 274.0 | 271.1 | 283.9 | 288.6 |
| 10° | 386.0 | 369.2 | 350.6 | 315.8 | 299.5 | 282.2 | 264.8 | 249.3 | 247.5 | 241.6 | 243.4 |
| 12.5° | 420.0 | 406.0 | 367.1 | 328.9 | 309.9 | 283.4 | 251.5 | 233.8 | 219.1 | 221.6 | 216.9 |
| 15° | 447.9 | 438.0 | 391.3 | 341.4 | 296.0 | 263.1 | 229.1 | 205.0 | 191.7 | 190.2 | 185.5 |
| 17.5° | 485.7 | 471.6 | 393.4 | 332.8 | 278.0 | 238.6 | 200.2 | 172.9 | 167.2 | 164.8 | 162.4 |
| 20° | 503.8 | 478.4 | 385.5 | 305.9 | 257.0 | 209.3 | 171.7 | 148.2 | 146.5 | 150.7 | 149.9 |
| 22.5° | 519.6 | 484.2 | 378.5 | 289.6 | 224.3 | 179.8 | 152.2 | 136.7 | 134.9 | 140.3 | 141.3 |
| 25° | 528.8 | 500.5 | 370.8 | 273.0 | 203.9 | 157.7 | 137.6 | 128.9 | 129.2 | 136.2 | 135.4 |
| 27.5° | 570.5 | 506.2 | 351.3 | 253.3 | 180.6 | 141.5 | 130.5 | 126.0 | 124.1 | 133.9 | 134.7 |
| 30° | 596.7 | 543.5 | 346.9 | 232.5 | 163.3 | 129.5 | 124.1 | 122.3 | 122.0 | 133.7 | 134.6 |
| 32.5° | 645.4 | 555.9 | 348.9 | 209.8 | 147.7 | 125.8 | 119.4 | 119.3 | 122.6 | 133.9 | 135.2 |
| 35° | 713.0 | 608.3 | 339.2 | 196.9 | 139.1 | 120.1 | 115.7 | 117.1 | 122.8 | 135.1 | 136.9 |
| 37.5° | 844.7 | 657.7 | 342.2 | 184.8 | 136.2 | 118.3 | 114.7 | 115.6 | 124.8 | 138.1 | 143.1 |
| 40° | 949.0 | 747.2 | 337.5 | 178.7 | 132.4 | 117.9 | 112.6 | 115.9 | 124.7 | 139.8 | 144.3 |
| 42.5° | 1100.2 | 818.6 | 338.0 | 172.7 | 132.2 | 116.6 | 112.2 | 116.3 | 124.3 | 138.3 | 144.5 |
| 45° | 1229.9 | 882.6 | 345.2 | 169.2 | 130.5 | 118.8 | 111.7 | 116.8 | 122.1 | 132.9 | 139.8 |
| 47.5° | 1336.2 | 954.0 | 352.6 | 165.8 | 129.9 | 120.8 | 111.2 | 113.2 | 118.4 | 126.8 | 133.1 |
| 50° | 1422.9 | 1004.3 | 362.0 | 165.1 | 129.9 | 119.8 | 109.9 | 109.7 | 114.1 | 120.8 | 126.7 |
| 52.5° | 1490.4 | 1039.7 | 368.4 | 166.0 | 129.9 | 115.9 | 108.2 | 106.8 | 109.5 | 114.4 | 120.3 |
| 55° | 1539.3 | 1050.6 | 363.2 | 168.2 | 129.7 | 112.4 | 105.2 | 104.0 | 105.3 | 108.7 | 114.2 |
| 57.5° | 1559.0 | 1021.9 | 332.1 | 164.3 | 129.7 | 109.9 | 101.5 | 100.1 | 101.5 | 104.0 | 109.5 |
| 60° | 1509.8 | 929.5 | 287.3 | 154.4 | 127.2 | 106.5 | 97.3 | 96.4 | 98.4 | 100.6 | 106.0 |
| 62.5° | 1386.3 | 806.7 | 239.4 | 142.6 | 122.0 | 103.7 | 93.2 | 93.4 | 96.6 | 99.6 | 105.0 |
| 65° | 1194.4 | 658.2 | 199.6 | 130.7 | 115.4 | 99.1 | 89.0 | 90.2 | 94.7 | 98.8 | 104.2 |
| 67.5° | 939.9 | 487.7 | 168.0 | 119.1 | 106.2 | 91.7 | 84.3 | 84.7 | 87.9 | 91.7 | 96.9 |
| 70° | 628.3 | 310.3 | 138.1 | 105.5 | 94.1 | 82.1 | 77.1 | 75.9 | 75.1 | 78.5 | 83.0 |
| 72.5° | 318.7 | 183.3 | 113.4 | 90.2 | 81.0 | 71.7 | 67.9 | 64.8 | 62.5 | 64.5 | 68.0 |
| 75° | 167.0 | 128.2 | 91.6 | 74.9 | 66.9 | 61.0 | 58.1 | 54.1 | 52.4 | 53.6 | 56.1 |
| 77.5° | 118.1 | 100.3 | 74.1 | 59.3 | 54.4 | 48.4 | 48.9 | 44.7 | 43.3 | 44.0 | 46.7 |
| 80° | 90.7 | 79.5 | 56.9 | 44.9 | 42.0 | 36.1 | 37.8 | 35.3 | 33.6 | 33.3 | 35.3 |
| 82.5° | 61.8 | 59.8 | 40.5 | 31.4 | 29.4 | 25.2 | 27.6 | 26.5 | 24.4 | 23.0 | 24.0 |
| 85° | 41.7 | 39.6 | 24.7 | 18.1 | 17.3 | 13.1 | 16.8 | 16.1 | 14.3 | 12.3 | 12.4 |
| 87.5° | 7.2 | 13.3 | 7.1 | 4.5 | 4.2 | 1.5 | 3.9 | 3.7 | 3.4 | 1.7 | 1.3 |
| 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)