

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: P367389

Luminaire Tested: **MSA-SA2B-830-U-T4W-HSS**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P367389
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-SA2B-830-U-T4W-HSS
Description: MESA POST TOP DECORATIVE LUMINAIRE. (2) 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: 5967 lumens
Efficiency: N/A
Efficacy: 70.2 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G2

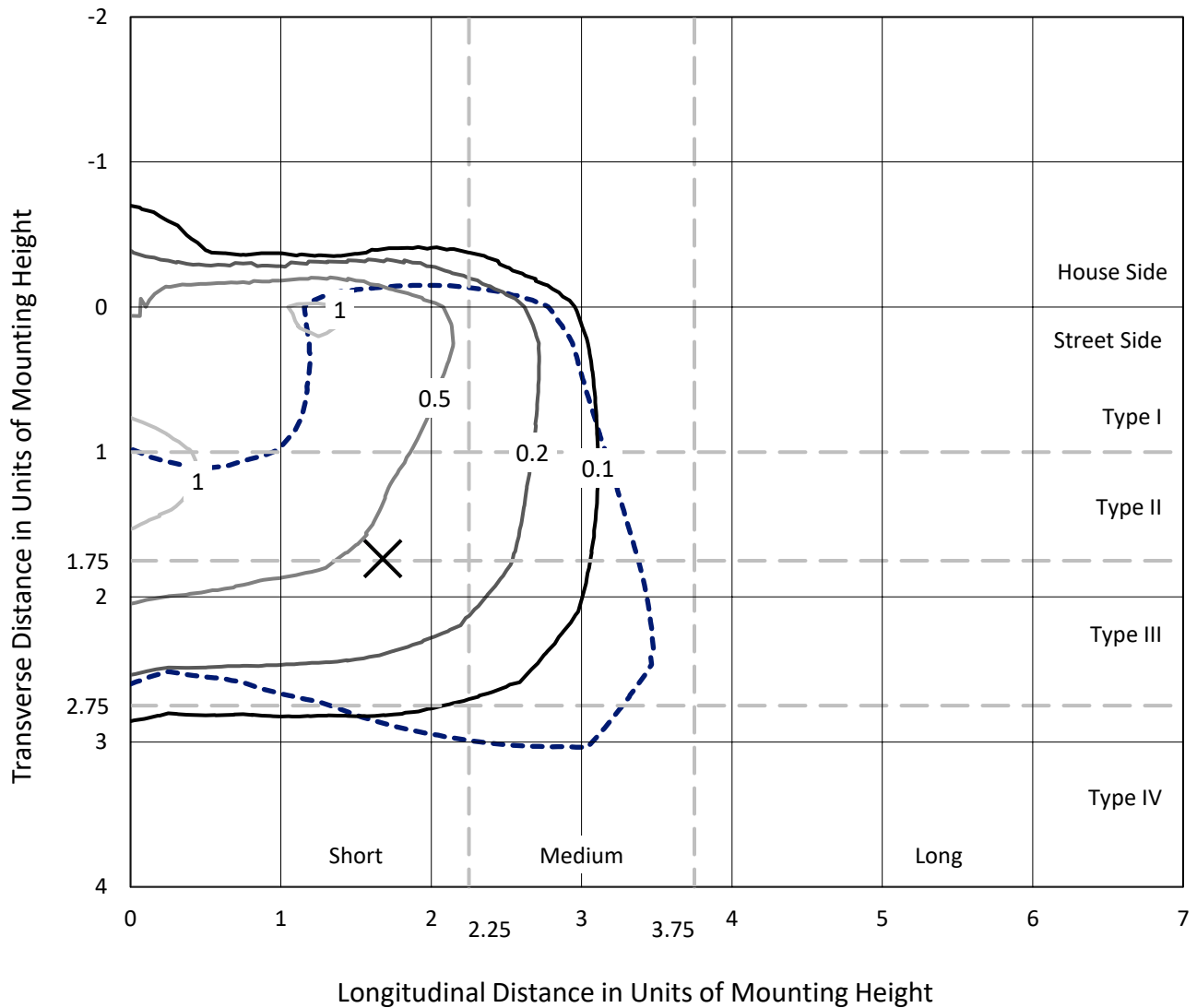
Input Watts (W): 85
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

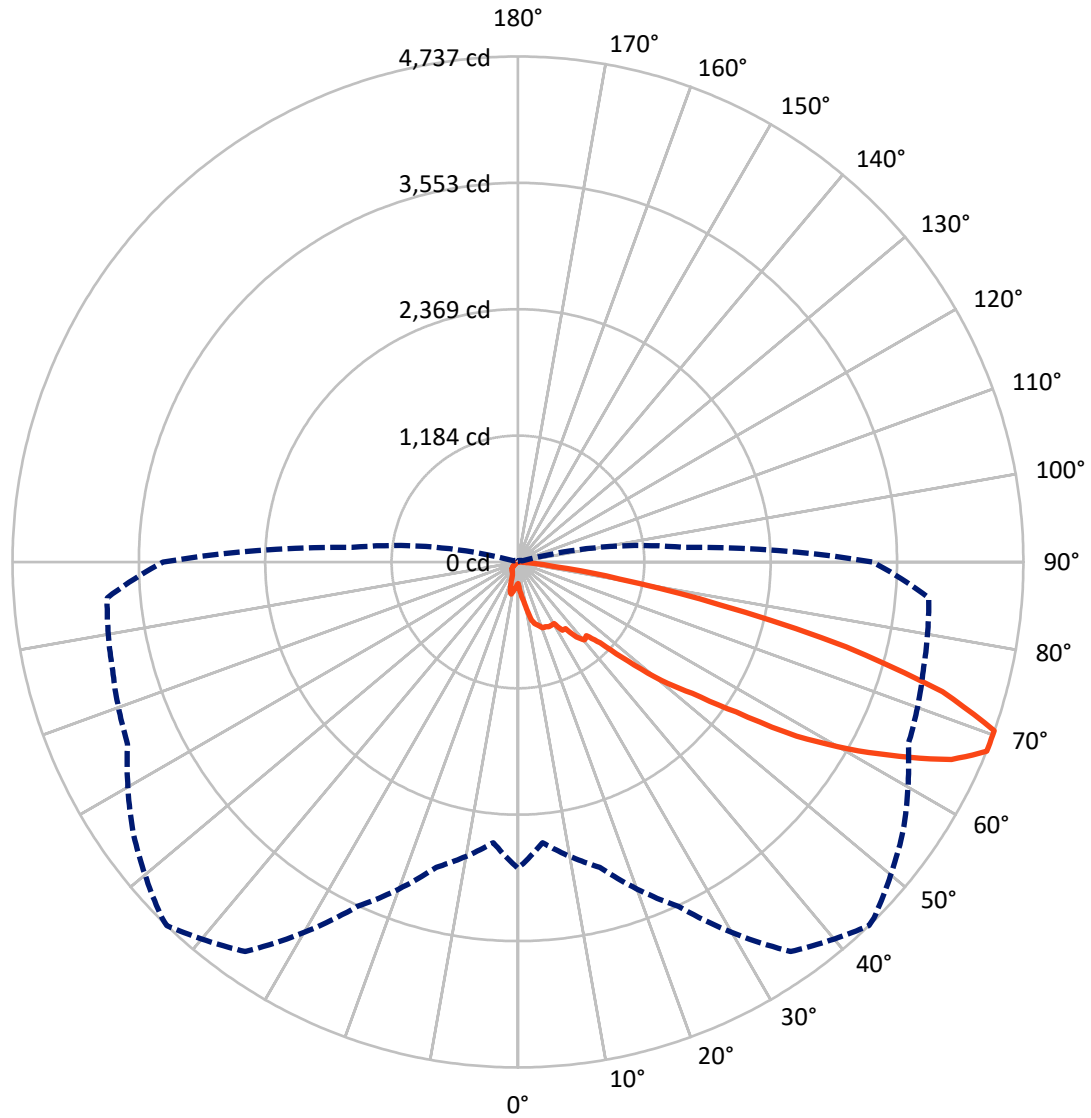
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.4 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 | 606.1 | 0.0 | 606.1 |
| | % Fixture | 10.2 | 0.0 | 10.2 |
| Street Side | Lumens | 5360.9 | 0.0 | 5360.9 |
| | % Fixture | 89.8 | 0.0 | 89.8 |
| Total | Lumens | 5967.0 | 0.0 | 5967.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 29.8 | 0.5 |
| 10°-20° | 124.7 | 2.1 |
| 20°-30° | 221.0 | 3.7 |
| 30°-40° | 359.2 | 6.0 |
| 40°-50° | 718.8 | 12.0 |
| 50°-60° | 1474.6 | 24.7 |
| 60°-70° | 2025.7 | 33.9 |
| 70°-80° | 952.1 | 16.0 |
| 80°-90° | 61.0 | 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° | 5967.0 | 100.0 |
| 0°-180° | 5967.0 | 100.0 |

Coefficient of Utilization



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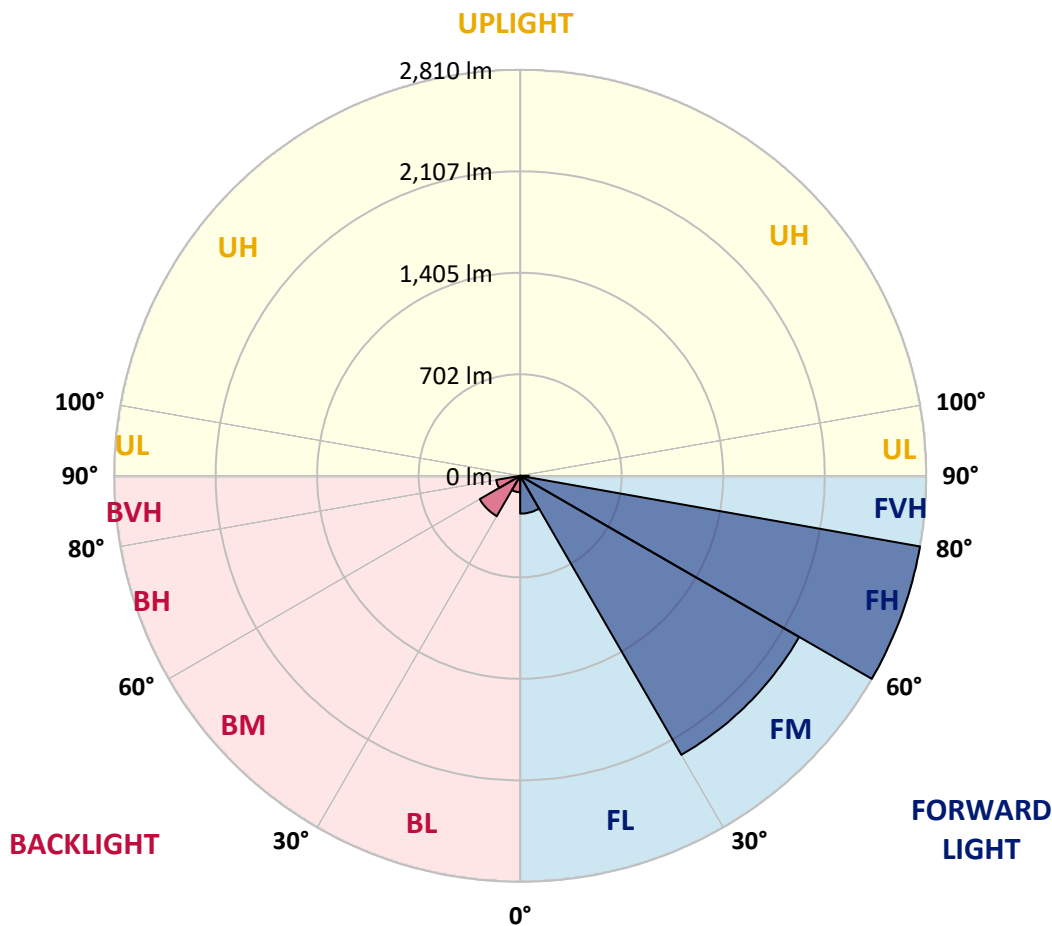
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 261.7 | 4.4 | | | |
| FM (30°-60°) | 2229.8 | 37.4 | | | |
| FH (60°-80°) | 2809.6 | 47.1 | | | G2/5000 |
| FVH (80°-90°) | 59.7 | 1.0 | | | G1/100 |
| BL (0°-30°) | 113.8 | 1.9 | B1/500 | | |
| BM (30°-60°) | 322.9 | 5.4 | B1/1000 | | |
| BH (60°-80°) | 168.2 | 2.8 | B1/500 | | G1/500 |
| BVH (80°-90°) | 1.2 | 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-G2

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 44° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 |
| 2.5° | 255.7 | 247.4 | 235.6 | 238.2 | 239.5 | 243.2 | 243.5 | 238.9 | 225.7 | 222.1 | 238.2 |
| 5° | 358.3 | 338.2 | 334.6 | 327.1 | 311.9 | 303.7 | 301.7 | 310.0 | 299.4 | 296.1 | 300.4 |
| 7.5° | 457.7 | 440.6 | 421.8 | 411.6 | 380.0 | 360.6 | 359.6 | 362.9 | 364.9 | 353.4 | 359.3 |
| 10° | 523.8 | 505.1 | 501.1 | 477.1 | 449.8 | 445.2 | 443.2 | 430.7 | 420.5 | 412.0 | 383.3 |
| 12.5° | 583.7 | 583.4 | 590.6 | 556.1 | 551.8 | 556.4 | 554.8 | 510.0 | 499.8 | 463.9 | 455.7 |
| 15° | 663.3 | 683.1 | 651.8 | 622.9 | 586.0 | 601.8 | 597.5 | 568.9 | 562.0 | 537.6 | 502.4 |
| 17.5° | 745.9 | 751.2 | 698.9 | 654.4 | 644.9 | 624.2 | 628.5 | 618.3 | 583.4 | 602.8 | 567.9 |
| 20° | 747.9 | 759.4 | 703.5 | 630.1 | 659.4 | 658.4 | 658.7 | 648.9 | 602.8 | 648.2 | 616.3 |
| 22.5° | 775.5 | 747.2 | 695.2 | 648.5 | 653.8 | 658.7 | 664.0 | 651.8 | 641.9 | 653.1 | 659.1 |
| 25° | 764.3 | 753.2 | 703.1 | 672.2 | 667.3 | 671.2 | 672.5 | 688.0 | 681.8 | 708.7 | 693.9 |
| 27.5° | 793.3 | 777.2 | 687.7 | 693.3 | 675.8 | 671.2 | 663.3 | 715.0 | 733.4 | 712.0 | 751.5 |
| 30° | 843.0 | 840.7 | 714.3 | 722.6 | 709.1 | 668.6 | 689.7 | 757.1 | 780.1 | 767.0 | 815.0 |
| 32.5° | 920.6 | 928.5 | 792.3 | 739.0 | 745.9 | 764.0 | 756.1 | 757.1 | 815.3 | 844.6 | 882.8 |
| 35° | 1030.9 | 1026.6 | 868.3 | 801.5 | 765.3 | 768.3 | 779.5 | 833.1 | 908.5 | 906.5 | 947.0 |
| 37.5° | 1247.4 | 1200.6 | 1002.9 | 865.4 | 876.2 | 891.0 | 882.8 | 954.9 | 962.1 | 964.7 | 1061.5 |
| 40° | 1566.5 | 1504.3 | 1215.1 | 999.9 | 895.3 | 960.8 | 956.8 | 974.6 | 1023.0 | 1041.1 | 1182.2 |
| 42.5° | 1987.0 | 1903.5 | 1588.6 | 1247.4 | 987.4 | 942.4 | 966.7 | 1000.3 | 1162.8 | 1214.5 | 1369.1 |
| 45° | 2451.6 | 2282.5 | 1961.0 | 1600.1 | 1218.4 | 1078.6 | 1097.0 | 1159.5 | 1384.9 | 1470.5 | 1641.2 |
| 47.5° | 2752.7 | 2604.0 | 2329.9 | 1912.7 | 1459.3 | 1385.9 | 1387.5 | 1401.0 | 1645.8 | 1804.4 | 2033.4 |
| 50° | 3014.3 | 2856.0 | 2601.7 | 2239.4 | 1885.4 | 1746.5 | 1714.9 | 1652.7 | 1978.2 | 2195.0 | 2449.0 |
| 52.5° | 3383.5 | 3198.5 | 2873.5 | 2622.7 | 2371.4 | 2044.3 | 2033.1 | 2054.2 | 2370.0 | 2598.1 | 2875.1 |
| 55° | 3716.4 | 3491.7 | 3181.4 | 3023.5 | 2925.4 | 2481.9 | 2491.4 | 2526.7 | 2873.1 | 2993.9 | 3254.1 |
| 57.5° | 3863.5 | 3620.0 | 3460.5 | 3389.4 | 3337.1 | 3079.8 | 3047.5 | 3026.5 | 3269.9 | 3316.0 | 3651.3 |
| 60° | 3959.9 | 3728.3 | 3655.9 | 3672.4 | 3830.9 | 3557.8 | 3528.6 | 3406.2 | 3598.3 | 3636.2 | 4007.3 |
| 62.5° | 3899.1 | 3687.8 | 3703.3 | 3840.5 | 4192.6 | 4012.9 | 3928.3 | 3723.7 | 3866.8 | 3897.4 | 4263.0 |
| 65° | 3515.7 | 3295.6 | 3494.3 | 3826.3 | 4468.3 | 4464.0 | 4424.9 | 4016.9 | 4015.5 | 4054.7 | 4282.7 |
| 67.5° | 2871.8 | 2640.8 | 2962.3 | 3561.1 | 4456.8 | 4737.4 | 4719.0 | 4405.8 | 4036.9 | 3932.3 | 3864.8 |
| 70° | 1996.6 | 1796.2 | 2160.8 | 2940.9 | 4059.6 | 4735.5 | 4705.8 | 4667.0 | 3867.8 | 3384.8 | 2996.5 |
| 72.5° | 1037.4 | 927.2 | 1266.8 | 2026.5 | 3236.1 | 4160.6 | 4258.4 | 4194.5 | 3302.5 | 2459.2 | 1764.6 |
| 75° | 352.4 | 316.2 | 522.5 | 1075.6 | 2151.2 | 3177.2 | 3291.7 | 3226.8 | 2243.0 | 1319.4 | 697.9 |
| 77.5° | 136.5 | 127.0 | 187.2 | 436.6 | 1079.2 | 1936.0 | 2060.4 | 1994.3 | 1202.9 | 483.4 | 164.2 |
| 80° | 77.7 | 75.0 | 103.3 | 196.8 | 475.8 | 963.1 | 1050.6 | 952.9 | 433.7 | 162.9 | 42.8 |
| 82.5° | 32.9 | 33.9 | 57.6 | 106.3 | 239.2 | 339.9 | 379.0 | 345.8 | 181.6 | 111.5 | 15.8 |
| 85° | 7.2 | 8.9 | 27.3 | 59.2 | 100.4 | 97.1 | 101.7 | 112.9 | 111.5 | 81.9 | 6.9 |
| 87.5° | 0.0 | 0.0 | 8.6 | 16.1 | 24.0 | 15.8 | 12.5 | 22.0 | 34.2 | 32.9 | 3.0 |
| 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° | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 | 201.0 |
| 2.5° | 241.2 | 237.9 | 217.2 | 215.8 | 217.2 | 213.5 | 213.2 | 205.6 | 206.3 | 223.4 | 224.7 |
| 5° | 300.4 | 284.0 | 266.2 | 260.6 | 255.3 | 243.5 | 250.1 | 250.1 | 250.1 | 260.9 | 264.2 |
| 7.5° | 354.0 | 332.0 | 307.0 | 285.9 | 265.5 | 250.7 | 260.9 | 268.2 | 272.4 | 286.6 | 293.2 |
| 10° | 378.4 | 356.7 | 334.3 | 304.4 | 288.6 | 283.0 | 271.1 | 264.9 | 272.4 | 269.5 | 273.1 |
| 12.5° | 430.4 | 410.6 | 372.1 | 341.2 | 329.4 | 310.3 | 275.4 | 251.1 | 234.9 | 232.3 | 231.6 |
| 15° | 481.0 | 468.9 | 417.2 | 375.8 | 334.6 | 290.5 | 231.0 | 198.7 | 181.6 | 178.7 | 179.0 |
| 17.5° | 545.2 | 527.8 | 451.8 | 392.2 | 322.5 | 243.2 | 178.3 | 150.7 | 149.4 | 156.6 | 157.3 |
| 20° | 588.0 | 559.4 | 469.2 | 378.7 | 282.3 | 183.9 | 139.5 | 132.9 | 143.5 | 156.6 | 155.3 |
| 22.5° | 628.8 | 597.9 | 492.2 | 366.9 | 218.8 | 139.5 | 128.3 | 129.0 | 137.9 | 152.0 | 155.6 |
| 25° | 655.8 | 644.6 | 520.5 | 339.2 | 166.8 | 120.8 | 122.7 | 127.7 | 135.2 | 148.7 | 148.7 |
| 27.5° | 737.0 | 684.7 | 517.2 | 285.6 | 128.3 | 112.5 | 117.1 | 123.4 | 127.3 | 143.5 | 145.1 |
| 30° | 786.4 | 769.3 | 534.4 | 231.0 | 112.5 | 102.0 | 110.9 | 116.5 | 119.1 | 137.5 | 138.2 |
| 32.5° | 846.9 | 809.1 | 555.1 | 170.4 | 104.6 | 101.3 | 99.4 | 103.6 | 111.2 | 127.3 | 128.3 |
| 35° | 920.6 | 909.5 | 525.5 | 133.9 | 102.0 | 94.8 | 90.8 | 93.1 | 98.1 | 108.9 | 111.2 |
| 37.5° | 1071.0 | 1004.5 | 507.7 | 114.8 | 102.0 | 92.5 | 88.2 | 82.3 | 82.9 | 90.5 | 94.8 |
| 40° | 1197.7 | 1177.3 | 458.0 | 111.5 | 97.4 | 89.2 | 78.6 | 71.4 | 66.5 | 68.8 | 70.4 |
| 42.5° | 1430.3 | 1335.9 | 393.9 | 109.9 | 93.1 | 80.6 | 66.8 | 59.2 | 51.7 | 52.3 | 54.9 |
| 45° | 1712.6 | 1509.0 | 336.6 | 108.3 | 90.2 | 72.1 | 56.3 | 47.4 | 39.5 | 39.8 | 42.4 |
| 47.5° | 2089.7 | 1761.3 | 267.2 | 103.3 | 84.9 | 64.2 | 45.4 | 36.2 | 31.6 | 32.6 | 34.9 |
| 50° | 2518.1 | 1982.8 | 211.2 | 95.7 | 78.6 | 56.6 | 36.9 | 29.3 | 27.6 | 28.6 | 31.3 |
| 52.5° | 2900.8 | 2146.0 | 174.4 | 88.8 | 69.8 | 46.1 | 30.9 | 26.0 | 25.3 | 26.0 | 28.0 |
| 55° | 3241.0 | 2240.7 | 145.8 | 80.9 | 59.9 | 37.2 | 28.0 | 24.0 | 23.7 | 23.4 | 24.7 |
| 57.5° | 3560.2 | 2268.0 | 113.8 | 68.4 | 48.7 | 32.2 | 26.0 | 22.4 | 21.7 | 20.7 | 21.7 |
| 60° | 3792.8 | 2221.3 | 83.6 | 54.9 | 39.8 | 29.3 | 24.3 | 20.1 | 19.1 | 17.4 | 18.1 |
| 62.5° | 3905.0 | 2093.3 | 63.2 | 44.1 | 33.9 | 26.7 | 21.7 | 17.4 | 16.1 | 14.1 | 14.5 |
| 65° | 3798.4 | 1882.4 | 49.7 | 37.2 | 29.0 | 22.4 | 18.4 | 14.8 | 13.2 | 11.2 | 11.2 |
| 67.5° | 3326.2 | 1561.6 | 42.1 | 32.2 | 24.3 | 19.1 | 15.1 | 13.5 | 10.9 | 9.2 | 8.9 |
| 70° | 2441.4 | 1123.3 | 36.2 | 28.3 | 21.1 | 16.5 | 12.8 | 12.2 | 10.5 | 8.9 | 8.2 |
| 72.5° | 1378.0 | 635.7 | 30.9 | 25.0 | 17.8 | 13.8 | 10.9 | 11.2 | 10.2 | 8.2 | 7.6 |
| 75° | 525.8 | 214.2 | 25.7 | 20.7 | 14.5 | 10.5 | 9.2 | 9.2 | 9.2 | 6.9 | 5.9 |
| 77.5° | 130.3 | 54.6 | 20.4 | 16.8 | 11.5 | 6.9 | 7.6 | 7.9 | 7.9 | 5.9 | 4.3 |
| 80° | 35.9 | 18.4 | 12.2 | 12.2 | 8.2 | 3.9 | 5.3 | 5.3 | 4.3 | 2.0 | 0.0 |
| 82.5° | 13.2 | 6.9 | 4.3 | 5.3 | 3.6 | 1.3 | 2.0 | 1.3 | 1.0 | 0.0 | 0.0 |
| 85° | 5.6 | 3.6 | 2.6 | 3.0 | 1.6 | 0.0 | 0.3 | 0.7 | 0.0 | 0.0 | 0.0 |
| 87.5° | 2.3 | 1.6 | 1.3 | 1.3 | 0.7 | 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)