

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: P366604

Luminaire Tested: **MSA-SA1A-727-U-SL2**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P366604  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-16)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: MSA-SA1A-727-U-SL2  
Description: MESA POST TOP DECORATIVE LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL LIGHT ELIMINATOR OPTICS.  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3357 lumens  
Efficiency: N/A  
Efficacy: 98.7 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B1 - U0 - G1

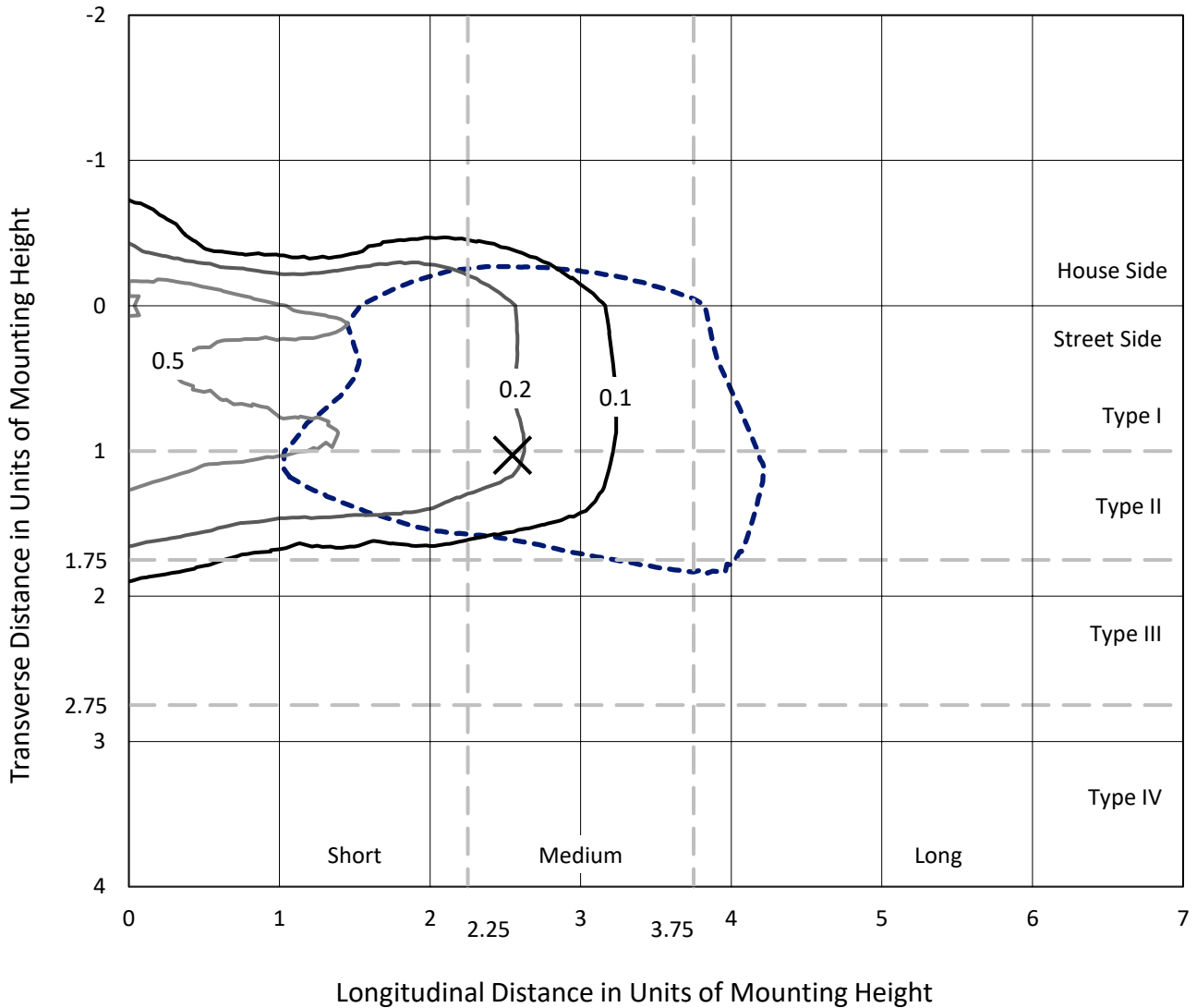
Input Watts (W): 34  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



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### Iso-Footcandle Lines of Horizontal Illumination

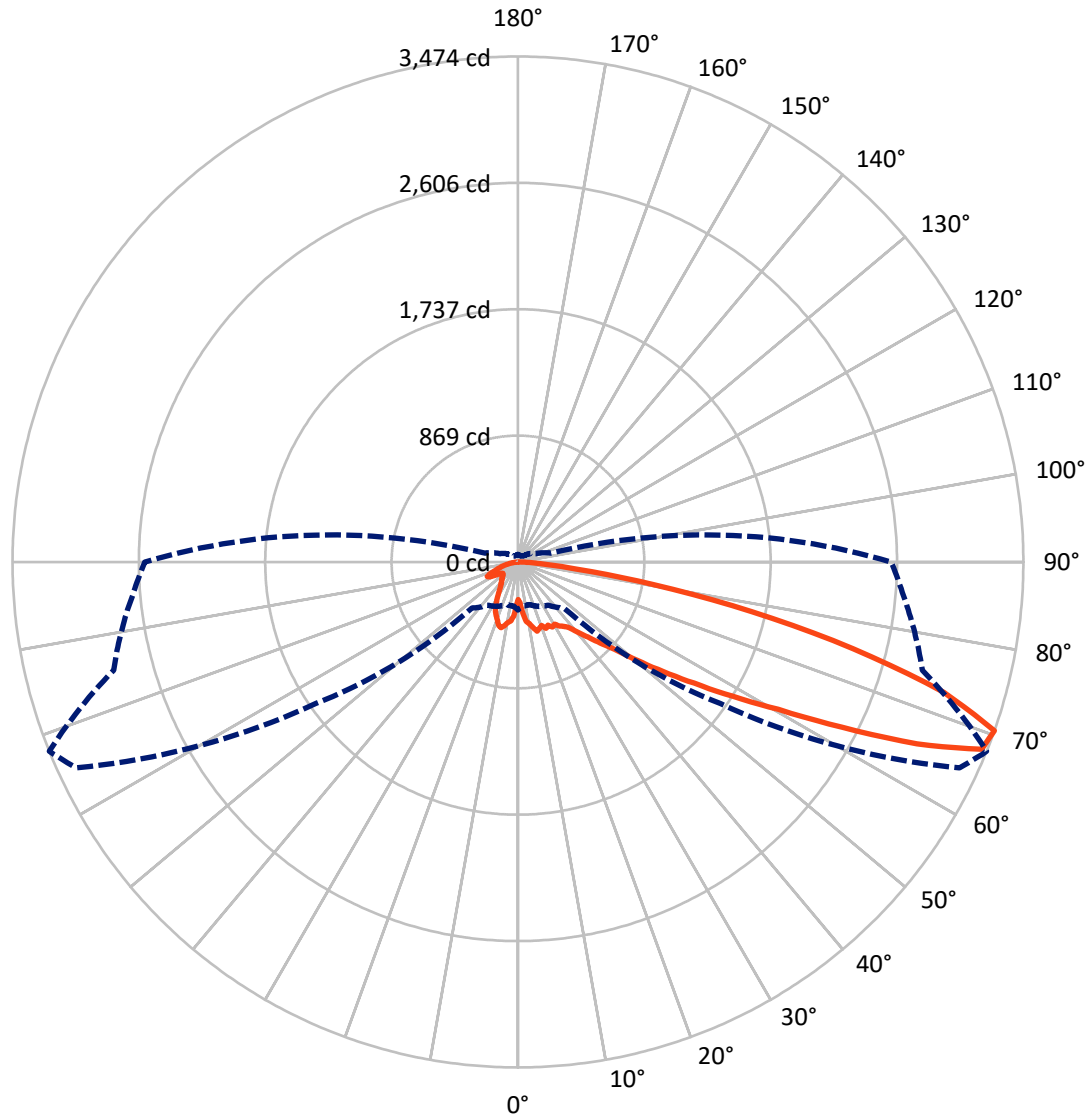
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.8 fc  
 Type III - Medium - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 68-Deg Lateral      - - - Horizontal Cone Through 70-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 640.9    | 0.0    | 640.9  |
|                    | % Fixture | 19.1     | 0.0    | 19.1   |
| <b>Street Side</b> | Lumens    | 2716.1   | 0.0    | 2716.1 |
|                    | % Fixture | 80.9     | 0.0    | 80.9   |
| <b>Total</b>       | Lumens    | 3357.0   | 0.0    | 3357.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 34.4   | 1.0       |
| 10°-20°   | 112.0  | 3.3       |
| 20°-30°   | 170.4  | 5.1       |
| 30°-40°   | 260.3  | 7.8       |
| 40°-50°   | 447.6  | 13.3      |
| 50°-60°   | 740.9  | 22.1      |
| 60°-70°   | 913.5  | 27.2      |
| 70°-80°   | 586.8  | 17.5      |
| 80°-90°   | 91.0   | 2.7       |
| 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°    | 3357.0 | 100.0     |
| 0°-180°   | 3357.0 | 100.0     |

**Coefficient of Utilization**



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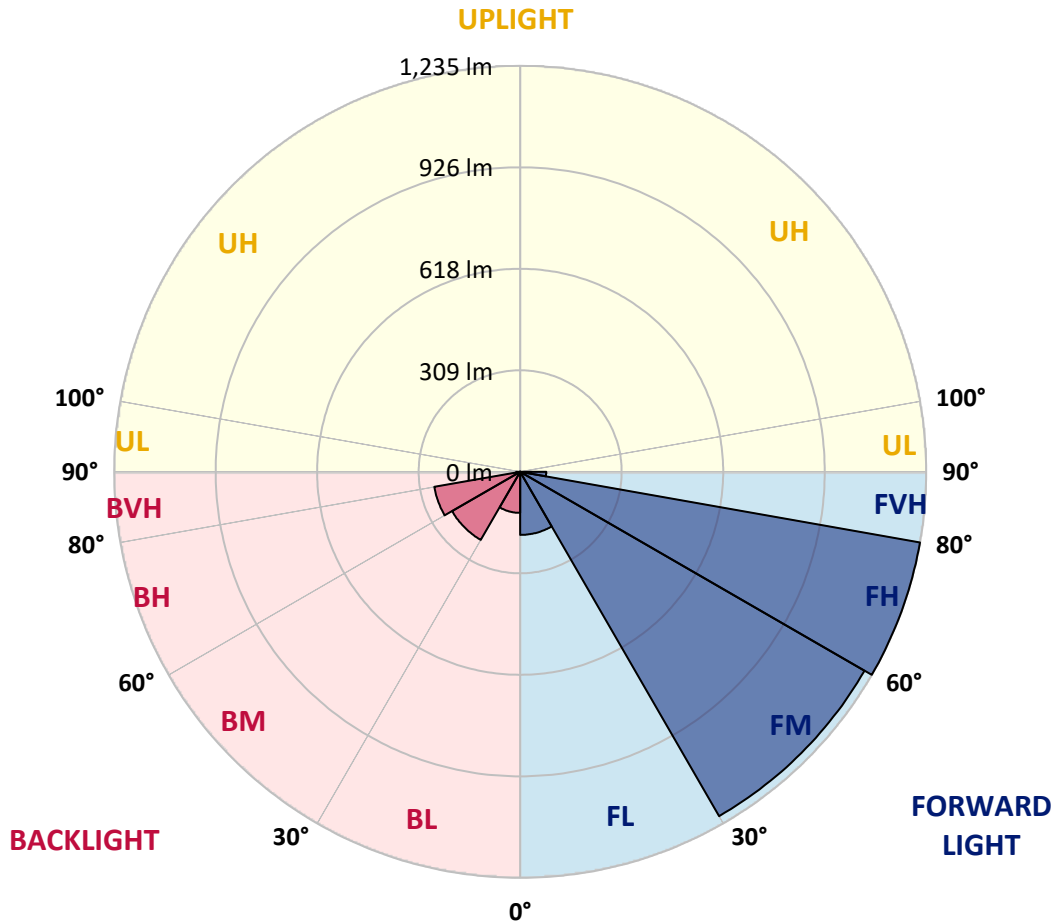
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 192.0  | 5.7       |                         |      |         |
| FM (30°-60°)   | 1209.7 | 36.0      |                         |      |         |
| FH (60°-80°)   | 1235.1 | 36.8      |                         |      | G1/1800 |
| FVH (80°-90°)  | 79.3   | 2.4       |                         |      | G1/100  |
| BL (0°-30°)    | 124.9  | 3.7       | B1/500                  |      |         |
| BM (30°-60°)   | 239.2  | 7.1       | B1/1000                 |      |         |
| BH (60°-80°)   | 265.1  | 7.9       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 11.7   | 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-G1**

Type III Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 68°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 257.4  | 257.4  | 257.4  | 257.4  | 257.4  | 257.4  | 257.4  | 257.4  | 257.4  | 257.4  | 257.4  |
| 2.5°  | 295.7  | 283.8  | 271.7  | 277.6  | 287.0  | 295.3  | 293.6  | 294.6  | 283.2  | 281.7  | 311.6  |
| 5°    | 348.4  | 327.9  | 327.5  | 327.8  | 328.6  | 319.1  | 342.4  | 354.5  | 357.1  | 369.5  | 398.9  |
| 7.5°  | 366.7  | 358.4  | 350.0  | 354.2  | 343.5  | 344.5  | 373.2  | 404.6  | 412.1  | 421.1  | 461.3  |
| 10°   | 362.9  | 355.0  | 357.6  | 358.3  | 360.2  | 376.1  | 394.5  | 424.7  | 431.0  | 459.7  | 470.1  |
| 12.5° | 363.5  | 362.1  | 373.9  | 374.3  | 395.4  | 423.9  | 431.2  | 459.0  | 461.5  | 482.6  | 526.0  |
| 15°   | 382.7  | 392.4  | 385.8  | 389.3  | 393.4  | 427.5  | 438.1  | 478.0  | 493.1  | 520.3  | 552.9  |
| 17.5° | 420.2  | 423.0  | 403.2  | 398.0  | 411.4  | 421.8  | 445.8  | 463.1  | 479.0  | 554.7  | 599.6  |
| 20°   | 428.9  | 436.5  | 412.9  | 386.1  | 414.3  | 428.8  | 445.5  | 453.4  | 465.8  | 559.7  | 623.5  |
| 22.5° | 466.3  | 450.6  | 422.1  | 398.7  | 408.0  | 422.1  | 434.1  | 463.8  | 496.2  | 545.3  | 647.4  |
| 25°   | 487.5  | 478.4  | 453.0  | 428.0  | 420.1  | 420.5  | 443.8  | 470.4  | 481.6  | 566.5  | 652.2  |
| 27.5° | 538.8  | 524.2  | 467.0  | 462.2  | 432.6  | 409.6  | 445.4  | 486.7  | 506.4  | 549.9  | 675.5  |
| 30°   | 603.0  | 591.9  | 516.9  | 510.6  | 465.3  | 425.1  | 465.0  | 498.8  | 496.0  | 560.7  | 691.7  |
| 32.5° | 655.0  | 673.5  | 597.8  | 547.9  | 515.8  | 477.3  | 458.9  | 496.7  | 524.6  | 585.9  | 719.1  |
| 35°   | 729.2  | 746.6  | 660.9  | 627.2  | 557.4  | 501.4  | 502.0  | 525.6  | 542.9  | 615.2  | 749.7  |
| 37.5° | 857.6  | 842.3  | 773.3  | 720.1  | 675.4  | 591.9  | 566.9  | 558.6  | 572.5  | 651.2  | 809.7  |
| 40°   | 950.2  | 937.3  | 856.1  | 825.7  | 738.7  | 690.3  | 621.7  | 613.8  | 638.4  | 688.3  | 858.7  |
| 42.5° | 1059.9 | 1036.9 | 961.3  | 936.3  | 845.4  | 758.0  | 688.9  | 693.4  | 705.3  | 758.3  | 925.0  |
| 45°   | 1171.6 | 1115.7 | 1072.8 | 1070.9 | 1010.2 | 889.5  | 796.6  | 793.0  | 793.4  | 861.3  | 999.5  |
| 47.5° | 1260.3 | 1210.0 | 1160.9 | 1137.6 | 1107.0 | 1117.0 | 953.1  | 910.3  | 897.4  | 964.9  | 1111.2 |
| 50°   | 1320.3 | 1262.4 | 1206.9 | 1201.4 | 1283.2 | 1337.0 | 1100.1 | 1054.3 | 1062.3 | 1113.3 | 1260.1 |
| 52.5° | 1321.5 | 1252.8 | 1194.9 | 1233.3 | 1425.9 | 1502.9 | 1353.3 | 1225.3 | 1250.9 | 1285.6 | 1454.4 |
| 55°   | 1229.6 | 1158.4 | 1120.8 | 1208.1 | 1481.7 | 1699.7 | 1709.0 | 1499.3 | 1469.8 | 1482.5 | 1686.7 |
| 57.5° | 1035.9 | 964.0  | 942.0  | 1046.7 | 1375.9 | 1889.6 | 2138.7 | 1826.6 | 1740.1 | 1686.7 | 1924.7 |
| 60°   | 779.8  | 717.5  | 703.9  | 770.6  | 1140.7 | 1833.8 | 2486.5 | 2234.1 | 2057.7 | 1914.7 | 2163.4 |
| 62.5° | 584.8  | 540.1  | 519.6  | 529.1  | 789.3  | 1652.4 | 2715.0 | 2748.9 | 2499.2 | 2163.7 | 2396.6 |
| 65°   | 475.2  | 439.1  | 420.8  | 408.4  | 490.9  | 1277.7 | 2673.7 | 3182.1 | 3014.8 | 2425.1 | 2578.1 |
| 67.5° | 396.9  | 364.9  | 356.4  | 368.5  | 388.1  | 741.3  | 2350.5 | 3424.5 | 3435.9 | 2683.1 | 2684.2 |
| 70°   | 329.5  | 305.7  | 302.6  | 336.9  | 362.6  | 447.3  | 1697.8 | 3348.4 | 3474.0 | 2876.6 | 2659.4 |
| 72.5° | 254.6  | 241.8  | 241.4  | 295.2  | 360.2  | 381.3  | 1011.0 | 2892.6 | 3061.3 | 2814.7 | 2416.0 |
| 75°   | 176.6  | 167.8  | 174.5  | 242.6  | 351.9  | 386.8  | 577.0  | 2253.0 | 2379.3 | 2395.2 | 1935.4 |
| 77.5° | 121.5  | 114.1  | 121.4  | 175.5  | 314.3  | 396.1  | 403.7  | 1629.1 | 1643.1 | 1606.2 | 1108.5 |
| 80°   | 84.6   | 79.4   | 85.0   | 124.2  | 244.6  | 392.0  | 343.7  | 1025.6 | 941.1  | 716.8  | 354.9  |
| 82.5° | 52.4   | 50.9   | 57.0   | 88.5   | 172.3  | 356.6  | 325.7  | 529.3  | 404.1  | 197.8  | 126.7  |
| 85°   | 27.5   | 25.3   | 33.2   | 57.7   | 107.8  | 279.9  | 305.2  | 241.5  | 156.0  | 70.2   | 50.9   |
| 87.5° | 8.1    | 7.3    | 12.8   | 23.3   | 45.7   | 125.5  | 174.6  | 102.4  | 58.2   | 20.7   | 15.9   |
| 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°    | 257.4  | 257.4  | 257.4 | 257.4 | 257.4 | 257.4 | 257.4 | 257.4 | 257.4 | 257.4 | 257.4 |
| 2.5°  | 313.7  | 312.2  | 291.4 | 294.1 | 298.6 | 299.7 | 299.5 | 292.0 | 283.9 | 306.3 | 305.6 |
| 5°    | 399.6  | 385.7  | 375.3 | 373.0 | 360.2 | 347.5 | 351.9 | 350.4 | 348.4 | 358.6 | 359.8 |
| 7.5°  | 461.4  | 442.1  | 430.1 | 399.0 | 369.5 | 343.9 | 352.1 | 354.6 | 349.6 | 367.8 | 373.3 |
| 10°   | 477.7  | 462.5  | 449.5 | 409.6 | 393.3 | 378.4 | 356.3 | 331.2 | 327.8 | 317.2 | 318.5 |
| 12.5° | 519.7  | 517.6  | 473.1 | 437.9 | 416.7 | 387.1 | 339.4 | 309.0 | 282.8 | 284.1 | 276.5 |
| 15°   | 552.9  | 554.0  | 500.5 | 451.3 | 394.4 | 349.1 | 293.1 | 255.1 | 228.3 | 223.0 | 217.5 |
| 17.5° | 597.4  | 595.2  | 502.7 | 435.3 | 363.2 | 296.9 | 228.2 | 190.5 | 186.0 | 189.1 | 184.3 |
| 20°   | 616.8  | 597.0  | 488.4 | 395.5 | 314.4 | 225.5 | 172.4 | 152.4 | 161.2 | 173.5 | 173.8 |
| 22.5° | 634.2  | 600.3  | 480.9 | 363.5 | 249.5 | 164.0 | 138.4 | 134.7 | 145.0 | 161.7 | 163.1 |
| 25°   | 633.5  | 615.9  | 467.6 | 331.2 | 193.5 | 128.0 | 120.3 | 122.9 | 135.2 | 152.6 | 153.6 |
| 27.5° | 665.4  | 604.0  | 432.9 | 288.7 | 145.7 | 109.6 | 111.6 | 116.5 | 122.2 | 138.8 | 142.0 |
| 30°   | 665.1  | 626.2  | 415.5 | 237.2 | 117.0 | 100.5 | 105.5 | 109.7 | 114.5 | 129.7 | 131.5 |
| 32.5° | 680.9  | 611.7  | 404.9 | 184.5 | 105.0 | 98.2  | 99.5  | 103.7 | 110.6 | 120.8 | 122.1 |
| 35°   | 699.8  | 628.2  | 371.2 | 146.5 | 100.5 | 96.2  | 97.2  | 99.6  | 105.9 | 115.3 | 116.6 |
| 37.5° | 760.7  | 631.3  | 357.8 | 123.5 | 100.2 | 95.4  | 95.3  | 96.5  | 103.7 | 112.3 | 116.1 |
| 40°   | 784.4  | 659.5  | 318.9 | 115.3 | 99.2  | 95.4  | 93.4  | 94.1  | 100.0 | 111.0 | 113.9 |
| 42.5° | 841.3  | 668.9  | 290.1 | 112.5 | 99.2  | 93.7  | 90.6  | 91.7  | 98.6  | 108.3 | 113.0 |
| 45°   | 899.9  | 682.3  | 255.8 | 112.0 | 99.1  | 93.6  | 87.7  | 90.2  | 95.8  | 104.0 | 109.0 |
| 47.5° | 983.3  | 730.3  | 221.6 | 110.3 | 97.9  | 94.3  | 87.0  | 86.8  | 91.7  | 98.8  | 103.5 |
| 50°   | 1119.5 | 805.3  | 195.0 | 108.2 | 98.1  | 93.7  | 85.6  | 83.6  | 86.8  | 93.0  | 97.6  |
| 52.5° | 1309.0 | 933.2  | 184.6 | 107.1 | 96.9  | 91.5  | 83.2  | 80.1  | 81.9  | 86.8  | 91.3  |
| 55°   | 1529.0 | 1105.9 | 194.9 | 107.1 | 94.7  | 88.0  | 79.8  | 76.2  | 77.1  | 80.5  | 84.9  |
| 57.5° | 1786.2 | 1320.4 | 244.5 | 105.5 | 91.9  | 83.7  | 75.7  | 71.5  | 71.8  | 74.7  | 78.7  |
| 60°   | 2054.6 | 1560.1 | 355.6 | 104.2 | 89.9  | 79.1  | 71.0  | 66.6  | 66.2  | 69.0  | 72.5  |
| 62.5° | 2323.6 | 1781.2 | 472.5 | 107.2 | 89.4  | 75.2  | 65.9  | 61.5  | 61.4  | 63.9  | 66.9  |
| 65°   | 2537.4 | 1932.4 | 501.6 | 119.1 | 93.0  | 70.7  | 60.7  | 56.6  | 56.3  | 58.4  | 61.7  |
| 67.5° | 2642.4 | 1954.3 | 381.0 | 134.0 | 100.7 | 66.5  | 55.6  | 51.8  | 51.6  | 53.8  | 56.6  |
| 70°   | 2564.7 | 1804.6 | 235.2 | 135.6 | 100.3 | 61.5  | 50.4  | 47.2  | 46.6  | 49.0  | 51.1  |
| 72.5° | 2277.2 | 1578.5 | 178.7 | 120.0 | 86.8  | 54.5  | 45.2  | 42.4  | 41.6  | 43.7  | 45.7  |
| 75°   | 1827.7 | 1253.2 | 143.2 | 96.8  | 68.4  | 45.9  | 40.0  | 37.4  | 36.4  | 38.4  | 40.0  |
| 77.5° | 1064.7 | 705.0  | 104.7 | 75.6  | 51.7  | 37.5  | 34.1  | 31.8  | 30.6  | 32.7  | 34.0  |
| 80°   | 346.2  | 234.9  | 65.8  | 54.2  | 37.8  | 29.4  | 27.7  | 26.0  | 24.9  | 26.3  | 26.7  |
| 82.5° | 124.3  | 87.4   | 36.4  | 33.3  | 25.1  | 21.1  | 20.9  | 20.0  | 18.5  | 19.1  | 19.1  |
| 85°   | 55.1   | 39.9   | 21.6  | 17.8  | 15.0  | 11.2  | 13.2  | 12.5  | 11.1  | 10.8  | 10.4  |
| 87.5° | 15.5   | 13.2   | 7.9   | 6.0   | 4.9   | 1.8   | 4.2   | 3.8   | 3.1   | 2.8   | 2.0   |
| 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)