

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: P368314

Luminaire Tested: **MSA-SA4A-830-U-T4W**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P368314
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-14)
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: MSA-SA4A-830-U-T4W
Description: MESA POST TOP DECORATIVE LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS.
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12491 lumens
Efficiency: N/A
Efficacy: 96.8 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B2 - U0 - G3

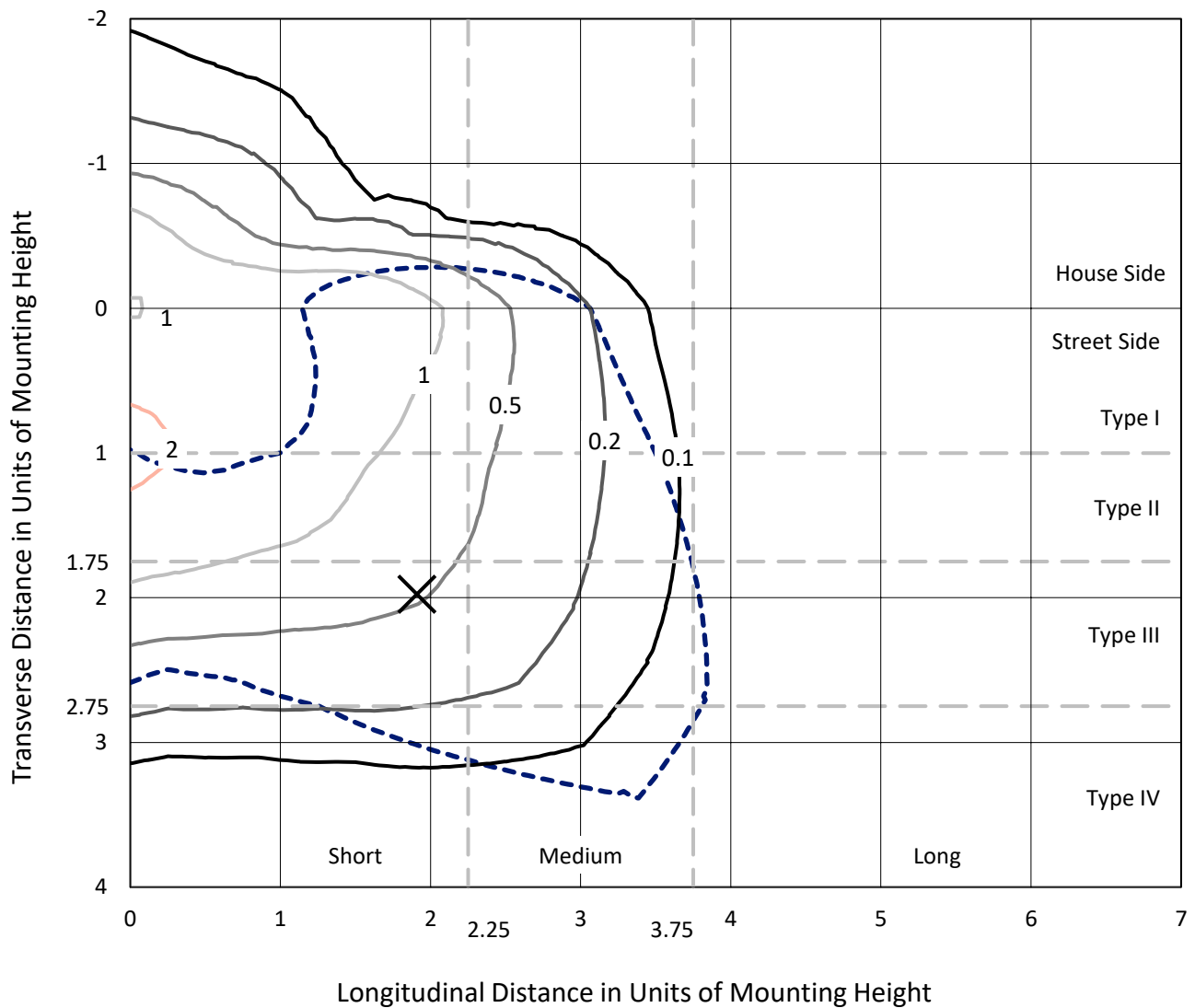
Input Watts (W): 129
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

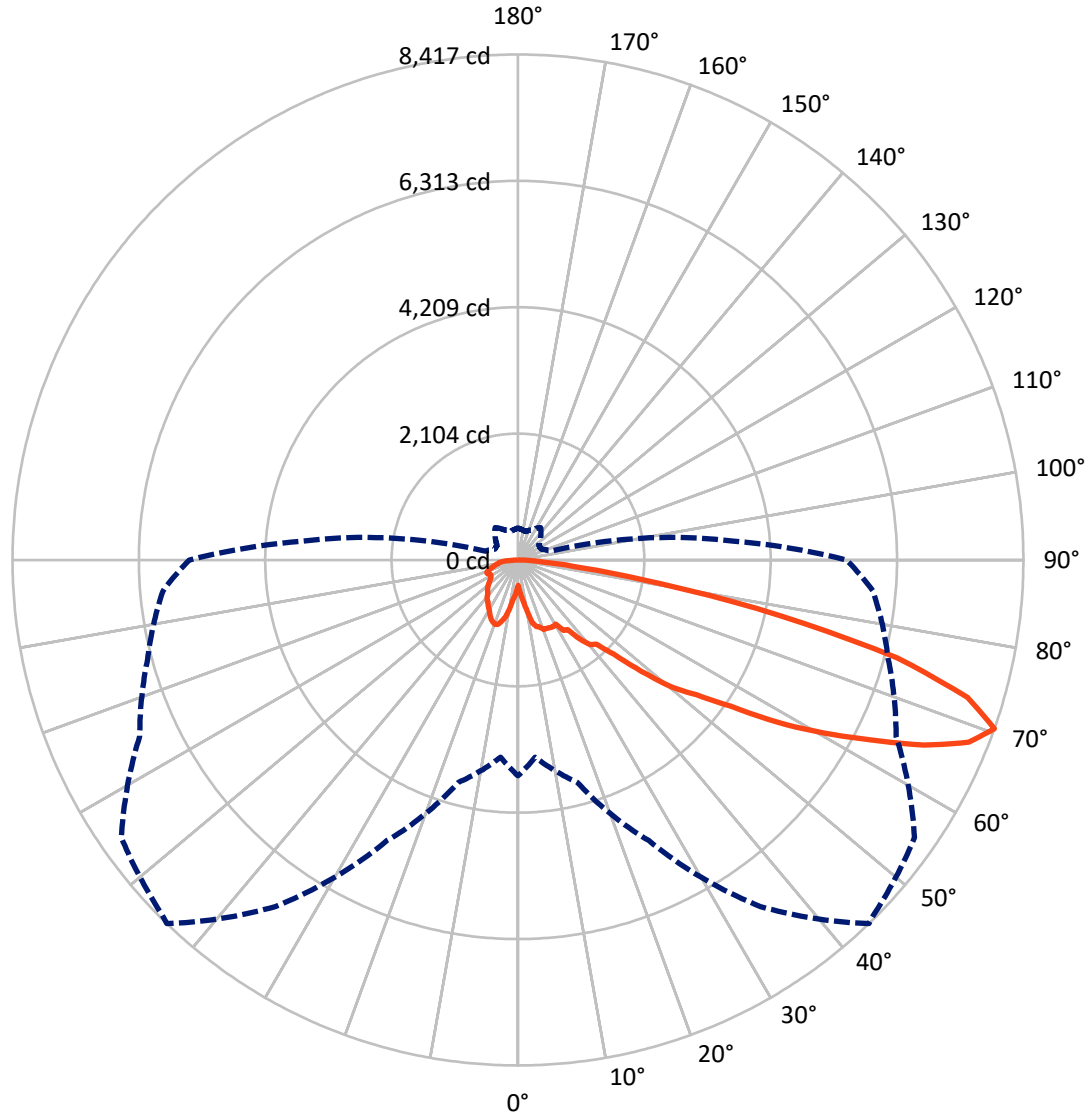
✕ Max cd
 - - - 1/2 Max cd



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 44-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2756.0 | 0.0 | 2756.0 |
| | % Fixture | 22.1 | 0.0 | 22.1 |
| Street Side | Lumens | 9735.0 | 0.0 | 9735.0 |
| | % Fixture | 77.9 | 0.0 | 77.9 |
| Total | Lumens | 12491.0 | 0.0 | 12491.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 66.6 | 0.5 |
| 10°-20° | 306.6 | 2.5 |
| 20°-30° | 572.9 | 4.6 |
| 30°-40° | 919.5 | 7.4 |
| 40°-50° | 1552.1 | 12.4 |
| 50°-60° | 2765.8 | 22.1 |
| 60°-70° | 3783.3 | 30.3 |
| 70°-80° | 2224.8 | 17.8 |
| 80°-90° | 299.6 | 2.4 |
| 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° | 12491.0 | 100.0 |
| 0°-180° | 12491.0 | 100.0 |

Coefficient of Utilization



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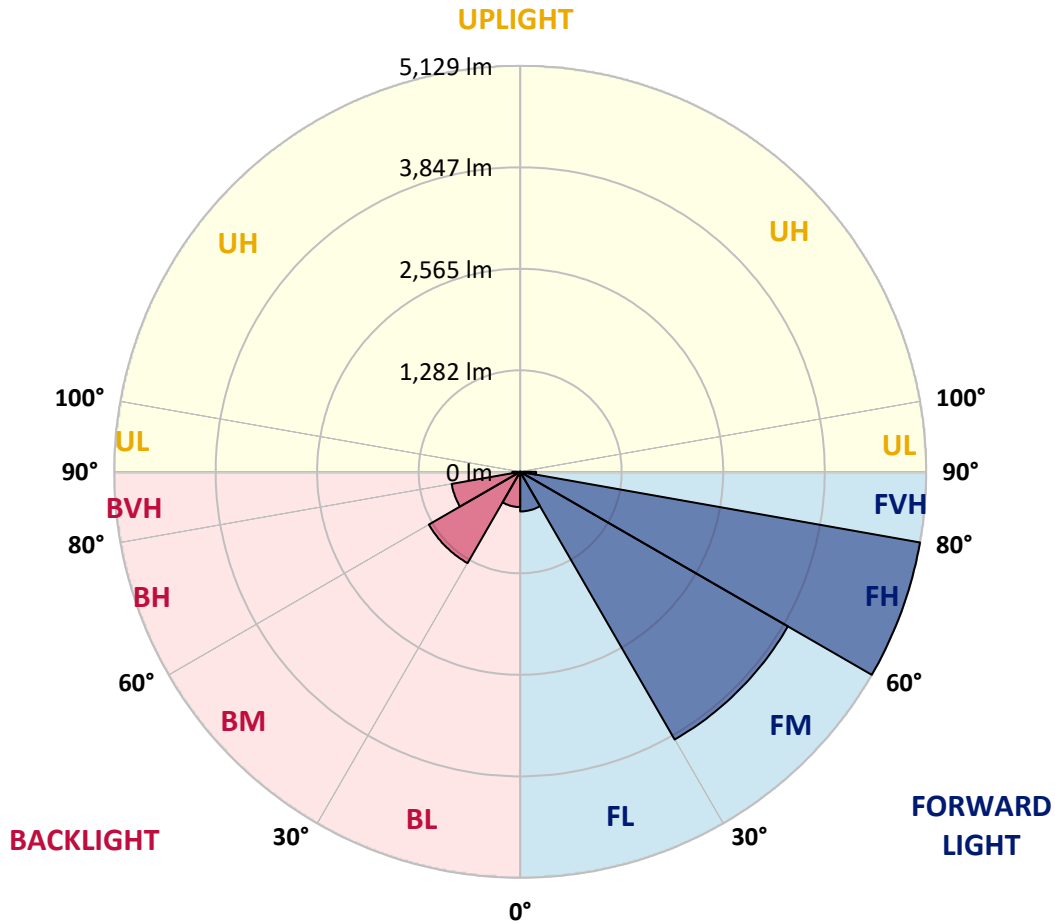
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 500.6 | 4.0 | | | |
| FM (30°-60°) | 3905.6 | 31.3 | | | |
| FH (60°-80°) | 5129.2 | 41.1 | | | G3/7500 |
| FVH (80°-90°) | 199.6 | 1.6 | | | G2/225 |
| BL (0°-30°) | 445.4 | 3.6 | B1/500 | | |
| BM (30°-60°) | 1331.8 | 10.7 | B2/2500 | | |
| BH (60°-80°) | 878.8 | 7.0 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 99.9 | 0.8 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G3

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 44° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 |
| 2.5° | 515.2 | 505.0 | 480.4 | 488.6 | 498.8 | 502.9 | 501.9 | 500.9 | 485.0 | 479.4 | 507.6 |
| 5° | 700.1 | 677.6 | 659.7 | 652.5 | 628.9 | 610.5 | 599.2 | 628.9 | 624.3 | 632.0 | 651.5 |
| 7.5° | 874.3 | 859.9 | 819.5 | 805.1 | 757.0 | 725.2 | 721.6 | 745.2 | 751.3 | 739.1 | 772.3 |
| 10° | 986.4 | 961.8 | 953.7 | 919.3 | 886.0 | 880.9 | 877.9 | 867.1 | 852.2 | 851.2 | 821.5 |
| 12.5° | 1073.5 | 1086.3 | 1093.0 | 1053.5 | 1054.5 | 1073.0 | 1063.3 | 1019.7 | 994.6 | 950.6 | 954.2 |
| 15° | 1229.7 | 1248.1 | 1195.4 | 1170.3 | 1122.2 | 1149.8 | 1146.2 | 1109.9 | 1106.3 | 1077.6 | 1044.3 |
| 17.5° | 1365.9 | 1374.1 | 1286.0 | 1228.7 | 1212.3 | 1172.3 | 1183.1 | 1184.1 | 1137.0 | 1188.2 | 1158.5 |
| 20° | 1377.2 | 1406.4 | 1305.0 | 1190.8 | 1240.0 | 1234.8 | 1236.4 | 1226.1 | 1164.2 | 1248.7 | 1237.4 |
| 22.5° | 1432.5 | 1388.0 | 1296.8 | 1213.3 | 1226.1 | 1233.8 | 1241.0 | 1228.7 | 1225.1 | 1272.2 | 1306.5 |
| 25° | 1422.3 | 1407.9 | 1315.8 | 1245.1 | 1246.6 | 1248.1 | 1251.7 | 1288.6 | 1284.5 | 1348.5 | 1366.5 |
| 27.5° | 1518.1 | 1496.0 | 1321.4 | 1304.0 | 1264.0 | 1255.3 | 1230.7 | 1307.6 | 1367.5 | 1365.9 | 1464.8 |
| 30° | 1700.4 | 1677.9 | 1452.5 | 1401.8 | 1329.6 | 1240.5 | 1287.6 | 1390.0 | 1437.1 | 1453.0 | 1578.5 |
| 32.5° | 1985.2 | 2022.0 | 1710.6 | 1506.3 | 1416.7 | 1397.2 | 1392.1 | 1381.8 | 1498.6 | 1577.0 | 1691.2 |
| 35° | 2393.9 | 2364.7 | 2014.9 | 1730.1 | 1508.3 | 1424.8 | 1436.1 | 1498.6 | 1637.4 | 1688.1 | 1793.6 |
| 37.5° | 2862.0 | 2801.5 | 2404.6 | 1983.6 | 1772.6 | 1668.1 | 1630.7 | 1691.2 | 1721.9 | 1761.9 | 1977.5 |
| 40° | 3337.8 | 3190.3 | 2787.2 | 2317.0 | 1931.4 | 1852.5 | 1819.7 | 1745.5 | 1817.7 | 1898.6 | 2172.6 |
| 42.5° | 3797.2 | 3683.0 | 3203.6 | 2715.0 | 2198.7 | 1917.5 | 1899.6 | 1826.9 | 2050.7 | 2136.2 | 2454.3 |
| 45° | 4278.6 | 4013.8 | 3630.2 | 3164.2 | 2589.5 | 2236.6 | 2210.0 | 2079.4 | 2366.2 | 2544.4 | 2851.7 |
| 47.5° | 4602.3 | 4357.0 | 4021.0 | 3528.8 | 2916.8 | 2770.3 | 2719.6 | 2496.3 | 2756.5 | 2988.0 | 3465.8 |
| 50° | 4908.6 | 4656.1 | 4303.2 | 3927.8 | 3509.4 | 3340.9 | 3232.8 | 2861.0 | 3242.5 | 3619.5 | 4253.0 |
| 52.5° | 5347.0 | 5121.1 | 4631.0 | 4329.9 | 4146.0 | 3731.6 | 3651.2 | 3446.9 | 3811.0 | 4319.6 | 5113.5 |
| 55° | 5815.6 | 5507.8 | 5063.8 | 4896.8 | 4822.6 | 4292.0 | 4226.4 | 4096.3 | 4568.0 | 5036.1 | 5949.8 |
| 57.5° | 6022.6 | 5701.4 | 5456.6 | 5356.7 | 5350.6 | 5106.3 | 5031.0 | 4940.4 | 5341.9 | 5650.7 | 6737.0 |
| 60° | 6187.0 | 5842.3 | 5744.5 | 5800.3 | 6003.1 | 5842.3 | 5744.5 | 5664.6 | 5971.9 | 6258.2 | 7379.3 |
| 62.5° | 6156.7 | 5811.0 | 5861.2 | 6031.3 | 6549.1 | 6596.2 | 6520.9 | 6327.3 | 6596.2 | 6756.0 | 7747.5 |
| 65° | 5669.2 | 5349.6 | 5642.0 | 6045.6 | 7056.6 | 7433.1 | 7429.0 | 6922.4 | 7015.6 | 7015.6 | 7708.6 |
| 67.5° | 4814.9 | 4484.0 | 4962.9 | 5919.1 | 7407.5 | 8096.3 | 8097.3 | 7553.4 | 7054.1 | 6989.5 | 7106.3 |
| 70° | 3595.4 | 3295.8 | 3834.1 | 5155.0 | 7045.4 | 8417.4 | 8370.8 | 8062.5 | 6948.6 | 6384.7 | 5936.0 |
| 72.5° | 2147.5 | 1953.9 | 2449.2 | 3752.6 | 6009.8 | 7826.9 | 7950.9 | 7476.1 | 6361.1 | 5309.6 | 4243.3 |
| 75° | 975.2 | 891.2 | 1150.8 | 2155.7 | 4290.4 | 6528.6 | 6663.3 | 6309.4 | 5052.5 | 3818.7 | 2452.3 |
| 77.5° | 417.4 | 394.9 | 502.4 | 956.2 | 2365.7 | 4464.6 | 4740.6 | 4509.1 | 3423.3 | 2219.2 | 1084.8 |
| 80° | 268.4 | 254.0 | 308.8 | 459.9 | 1098.6 | 2412.3 | 2649.9 | 2563.4 | 1743.9 | 863.0 | 382.1 |
| 82.5° | 160.3 | 155.7 | 206.4 | 288.9 | 599.2 | 1061.7 | 1196.4 | 1228.2 | 724.2 | 387.2 | 218.7 |
| 85° | 87.6 | 88.6 | 113.2 | 175.2 | 359.5 | 413.3 | 442.5 | 481.4 | 341.1 | 224.3 | 106.0 |
| 87.5° | 29.2 | 33.8 | 45.6 | 71.2 | 128.0 | 116.8 | 117.3 | 136.2 | 143.9 | 93.2 | 33.8 |
| 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° | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 | 424.6 |
| 2.5° | 512.2 | 502.9 | 479.4 | 480.9 | 489.6 | 491.7 | 494.2 | 479.4 | 476.3 | 504.5 | 507.0 |
| 5° | 654.5 | 624.3 | 610.5 | 605.9 | 592.6 | 588.0 | 612.6 | 623.8 | 635.1 | 657.1 | 667.9 |
| 7.5° | 768.8 | 735.0 | 709.9 | 686.8 | 667.4 | 656.1 | 697.6 | 729.3 | 748.8 | 793.9 | 814.3 |
| 10° | 821.0 | 791.8 | 782.6 | 764.2 | 779.0 | 812.8 | 820.5 | 821.5 | 864.5 | 863.5 | 872.2 |
| 12.5° | 925.0 | 906.0 | 875.8 | 882.5 | 921.4 | 956.2 | 946.5 | 961.3 | 976.7 | 1013.6 | 996.7 |
| 15° | 1019.7 | 1014.6 | 986.4 | 991.0 | 998.7 | 1042.3 | 1047.9 | 1062.7 | 1086.3 | 1115.5 | 1095.5 |
| 17.5° | 1136.5 | 1134.4 | 1065.8 | 1059.7 | 1077.6 | 1120.1 | 1106.8 | 1080.7 | 1158.5 | 1189.8 | 1181.6 |
| 20° | 1215.9 | 1200.5 | 1112.4 | 1086.3 | 1131.9 | 1137.5 | 1122.2 | 1080.7 | 1148.3 | 1216.4 | 1234.8 |
| 22.5° | 1282.0 | 1264.0 | 1173.4 | 1122.2 | 1112.9 | 1115.5 | 1115.5 | 1107.8 | 1141.1 | 1196.9 | 1196.4 |
| 25° | 1335.2 | 1352.1 | 1236.9 | 1187.7 | 1138.5 | 1077.1 | 1069.4 | 1076.1 | 1095.0 | 1202.6 | 1199.0 |
| 27.5° | 1468.9 | 1422.3 | 1258.4 | 1221.5 | 1120.6 | 1023.8 | 1044.8 | 1055.1 | 1061.2 | 1179.0 | 1198.5 |
| 30° | 1556.0 | 1570.3 | 1335.2 | 1241.5 | 1094.5 | 964.4 | 971.6 | 1001.3 | 1037.1 | 1176.4 | 1182.1 |
| 32.5° | 1673.2 | 1642.5 | 1455.1 | 1208.2 | 1024.8 | 928.6 | 915.2 | 955.2 | 1008.5 | 1135.0 | 1150.3 |
| 35° | 1782.3 | 1818.7 | 1505.8 | 1202.1 | 976.2 | 874.8 | 889.1 | 902.9 | 958.3 | 1088.9 | 1106.8 |
| 37.5° | 2038.4 | 1955.4 | 1648.2 | 1172.3 | 935.7 | 847.6 | 832.3 | 853.3 | 900.4 | 1001.3 | 1042.8 |
| 40° | 2233.0 | 2238.2 | 1678.9 | 1135.0 | 858.4 | 808.7 | 775.9 | 796.9 | 816.9 | 897.3 | 915.2 |
| 42.5° | 2598.2 | 2486.6 | 1754.2 | 1053.0 | 809.7 | 750.3 | 731.9 | 741.1 | 744.2 | 778.0 | 807.7 |
| 45° | 3062.8 | 2801.0 | 1783.9 | 942.9 | 745.7 | 726.3 | 688.9 | 684.3 | 667.4 | 672.0 | 698.1 |
| 47.5° | 3705.5 | 3291.7 | 1762.4 | 825.6 | 688.9 | 695.0 | 641.2 | 620.2 | 596.7 | 602.3 | 626.9 |
| 50° | 4536.8 | 3918.6 | 1760.8 | 726.3 | 649.9 | 654.0 | 610.0 | 572.1 | 548.5 | 560.3 | 581.8 |
| 52.5° | 5469.4 | 4547.5 | 1768.0 | 658.1 | 607.4 | 605.4 | 589.5 | 543.4 | 524.5 | 536.7 | 561.3 |
| 55° | 6361.6 | 5088.4 | 1821.3 | 615.1 | 563.4 | 567.0 | 573.1 | 534.2 | 513.2 | 524.5 | 550.1 |
| 57.5° | 7138.1 | 5515.5 | 1801.3 | 569.5 | 522.4 | 538.8 | 555.2 | 521.4 | 505.5 | 521.9 | 547.5 |
| 60° | 7681.0 | 5713.7 | 1643.5 | 526.0 | 492.2 | 514.7 | 546.5 | 519.8 | 517.8 | 553.1 | 583.9 |
| 62.5° | 7879.2 | 5640.5 | 1336.2 | 491.7 | 474.3 | 511.7 | 566.5 | 553.7 | 555.7 | 599.2 | 641.7 |
| 65° | 7589.8 | 5255.3 | 996.7 | 469.7 | 460.4 | 526.5 | 612.6 | 573.6 | 545.5 | 581.3 | 620.2 |
| 67.5° | 6766.7 | 4570.6 | 728.3 | 450.7 | 444.6 | 550.1 | 655.1 | 571.6 | 519.3 | 555.7 | 587.5 |
| 70° | 5474.5 | 3607.7 | 563.9 | 426.6 | 423.6 | 534.2 | 659.2 | 556.2 | 491.2 | 514.7 | 532.7 |
| 72.5° | 3751.1 | 2470.2 | 467.1 | 403.6 | 387.2 | 473.2 | 625.9 | 521.9 | 457.4 | 471.2 | 486.0 |
| 75° | 2096.3 | 1386.4 | 392.8 | 374.9 | 339.1 | 421.5 | 586.9 | 501.4 | 432.3 | 436.4 | 456.9 |
| 77.5° | 940.8 | 599.7 | 333.4 | 337.0 | 295.5 | 372.9 | 536.2 | 468.6 | 393.9 | 384.6 | 405.1 |
| 80° | 356.0 | 292.4 | 270.4 | 284.8 | 248.4 | 323.2 | 483.5 | 438.9 | 353.4 | 341.6 | 353.4 |
| 82.5° | 206.4 | 177.2 | 200.8 | 219.2 | 197.2 | 297.1 | 461.5 | 411.8 | 311.4 | 281.7 | 291.9 |
| 85° | 95.8 | 91.7 | 120.4 | 142.4 | 137.8 | 231.5 | 394.9 | 309.9 | 221.8 | 187.5 | 207.4 |
| 87.5° | 25.1 | 28.2 | 42.5 | 50.2 | 51.2 | 79.4 | 152.1 | 115.2 | 86.6 | 65.6 | 63.0 |
| 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)