

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: RSA

Report Number: P219776

Luminaire Tested: **MRZ-1-REC-X-3-L30-80-FL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P219776
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P14877)
Test Lab: INNOVATION CENTER (G1)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: RSA
Catalog Number: MRZ-1-REC-X-3-L30-80-FL-UNV-X-STD-LSL
Description: MRZ INTEGRAL LED DOWNLIGHT
40 DEGREE FLOOD OPTIC WITH LINEAR SPREAD LENS, LIGHT LEVEL 3
Light Source: (1) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 962.8 lumens
Efficiency: N/A
Efficacy: 80.9 lumens/watt
Spacing Criteria (0/90/45): 0.61 / 0.69 / 0.7
Luminous Opening: Circular (Dia: 0.17' x H: 0')
CIE Type: Direct

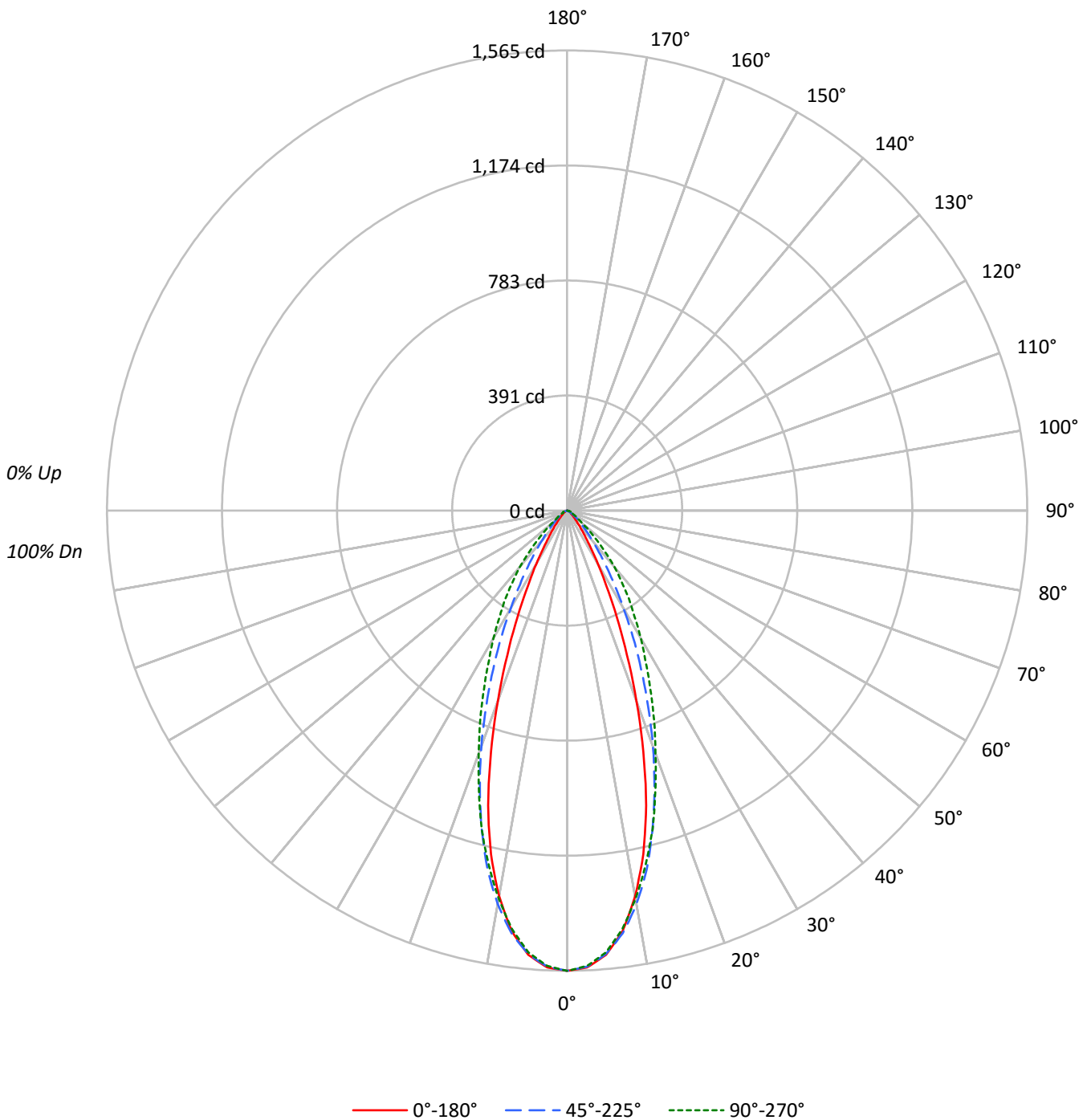
Input Watts (W): 11.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P219776

CATALOG NUMBER: MRZ-1-REC-X-3-L30-80-FL-UNV-X-STD-LSL

Luminous Intensity Polar Plot





TEST NUMBER: P219776

CATALOG NUMBER: MRZ-1-REC-X-3-L30-80-FL-UNV-X-STD-LSL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|-----|---|--|---|
| RF | 20 | | | | | 20 | | | | | 20 | | | | | 20 | | | | | 20 | | | | | |
| RC | 80 | | | | | 70 | | | | | 50 | | | | | 30 | | | | | 10 | | | | | 0 |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | | 100 | | | |
| 1 | 114 | 111 | 108 | 106 | 111 | 109 | 106 | 104 | 105 | 103 | 101 | 101 | 99 | 98 | 97 | 96 | 95 | 93 | | | | | 93 | | | |
| 2 | 108 | 103 | 99 | 96 | 106 | 101 | 98 | 95 | 98 | 95 | 93 | 95 | 93 | 91 | 92 | 90 | 89 | 87 | | | | | 87 | | | |
| 3 | 103 | 96 | 91 | 87 | 101 | 95 | 90 | 87 | 92 | 88 | 85 | 90 | 87 | 84 | 88 | 85 | 83 | 81 | | | | | 81 | | | |
| 4 | 98 | 90 | 85 | 81 | 96 | 89 | 84 | 80 | 87 | 83 | 79 | 85 | 81 | 78 | 83 | 80 | 77 | 76 | | | | | 76 | | | |
| 5 | 93 | 85 | 79 | 75 | 91 | 84 | 78 | 74 | 82 | 77 | 74 | 80 | 76 | 73 | 79 | 75 | 72 | 71 | | | | | 71 | | | |
| 6 | 88 | 80 | 74 | 70 | 87 | 79 | 74 | 70 | 78 | 73 | 69 | 76 | 72 | 69 | 75 | 71 | 68 | 67 | | | | | 67 | | | |
| 7 | 84 | 75 | 70 | 65 | 83 | 75 | 69 | 65 | 73 | 68 | 65 | 72 | 68 | 65 | 71 | 67 | 64 | 63 | | | | | 63 | | | |
| 8 | 81 | 71 | 66 | 62 | 79 | 71 | 65 | 61 | 70 | 65 | 61 | 69 | 64 | 61 | 68 | 64 | 61 | 59 | | | | | 59 | | | |
| 9 | 77 | 68 | 62 | 58 | 76 | 67 | 62 | 58 | 66 | 61 | 58 | 65 | 61 | 58 | 65 | 61 | 57 | 56 | | | | | 56 | | | |
| 10 | 74 | 64 | 59 | 55 | 73 | 64 | 59 | 55 | 63 | 58 | 55 | 62 | 58 | 55 | 62 | 58 | 55 | 53 | | | | | 53 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 772287 | 772287 | 772287 |
| 5° | 751217 | 749830 | 747007 |
| 10° | 667169 | 680696 | 671428 |
| 15° | 530347 | 573253 | 573253 |
| 20° | 361913 | 447915 | 461408 |
| 25° | 216338 | 324072 | 364411 |
| 30° | 119296 | 217457 | 284796 |
| 35° | 62640 | 139855 | 220444 |
| 40° | 35745 | 85338 | 161466 |
| 45° | 22886 | 54633 | 100336 |
| 50° | 16426 | 36075 | 52501 |
| 55° | 13505 | 20816 | 33117 |
| 60° | 11249 | 12631 | 21117 |
| 65° | 9923 | 9923 | 16578 |
| 70° | 8223 | 8223 | 22648 |
| 75° | 8197 | 5338 | 13535 |
| 80° | 3978 | 3978 | 7956 |
| 85° | 0 | 0 | 0 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 139.1 | 14.4 |
| 10°-20° | 302.3 | 31.4 |
| 20°-30° | 261.5 | 27.2 |
| 30°-40° | 151.1 | 15.7 |
| 40°-50° | 68.5 | 7.1 |
| 50°-60° | 24.2 | 2.5 |
| 60°-70° | 10.7 | 1.1 |
| 70°-80° | 5.1 | 0.5 |
| 80°-90° | 0.4 | 0.0 |
| 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°-30° | 702.9 | 73.0 |
| 0°-40° | 854.1 | 88.7 |
| 0°-60° | 946.7 | 98.3 |
| 0°-90° | 962.8 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 962.8 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1565 | 1565 | 1565 | 1565 | 1565 | |
| 5° | 1517 | 1515 | 1514 | 1508 | 1508 | 139 |
| 15° | 1038 | 1070 | 1122 | 1132 | 1122 | 282 |
| 25° | 397 | 457 | 595 | 682 | 669 | 186 |
| 35° | 104 | 135 | 232 | 346 | 366 | 70 |
| 45° | 33 | 40 | 78 | 137 | 144 | 27 |
| 55° | 16 | 16 | 24 | 31 | 38 | 14 |
| 65° | 8 | 10 | 8 | 13 | 14 | 8 |
| 75° | 4 | 4 | 3 | 6 | 7 | 4 |
| 85° | 0 | 0 | 0 | 0 | 0 | 0 |
| 90° | 0 | 0 | 0 | 0 | 0 | 0 |



TEST NUMBER: P219776

CATALOG NUMBER: MRZ-1-REC-X-3-L30-80-FL-UNV-X-STD-LSL

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 10° | 15° | 20° | 22.5° | 25° | 30° | 35° | 40° | 45° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 |
| 2.5° | 1555.3 | 1552.4 | 1552.4 | 1552.4 | 1553.9 | 1553.9 | 1552.4 | 1552.4 | 1552.4 | 1552.4 | 1552.4 |
| 5° | 1516.8 | 1514.0 | 1514.0 | 1515.4 | 1514.0 | 1515.4 | 1514.0 | 1516.8 | 1515.4 | 1514.0 | 1514.0 |
| 7.5° | 1442.8 | 1442.8 | 1442.8 | 1444.2 | 1445.6 | 1445.6 | 1445.6 | 1448.5 | 1448.5 | 1451.3 | 1449.9 |
| 10° | 1331.7 | 1334.5 | 1334.5 | 1338.8 | 1343.1 | 1340.2 | 1341.6 | 1350.2 | 1353.0 | 1355.9 | 1358.7 |
| 12.5° | 1196.4 | 1200.6 | 1203.5 | 1206.3 | 1210.6 | 1214.9 | 1216.3 | 1230.6 | 1234.8 | 1240.5 | 1250.5 |
| 15° | 1038.3 | 1036.9 | 1045.4 | 1049.7 | 1062.5 | 1069.6 | 1073.9 | 1088.1 | 1102.4 | 1110.9 | 1122.3 |
| 17.5° | 860.3 | 864.5 | 868.8 | 880.2 | 895.9 | 905.8 | 911.5 | 928.6 | 951.4 | 969.9 | 987.0 |
| 20° | 689.3 | 697.9 | 702.2 | 715.0 | 730.6 | 736.3 | 752.0 | 774.8 | 804.7 | 830.3 | 853.1 |
| 22.5° | 531.2 | 535.5 | 546.9 | 561.2 | 578.2 | 591.1 | 606.7 | 629.5 | 660.9 | 686.5 | 717.8 |
| 25° | 397.4 | 398.8 | 413.0 | 425.9 | 444.4 | 457.2 | 465.7 | 495.6 | 528.4 | 561.2 | 595.3 |
| 27.5° | 289.1 | 292.0 | 300.5 | 313.3 | 333.3 | 341.8 | 356.1 | 381.7 | 413.0 | 448.6 | 484.2 |
| 30° | 209.4 | 209.4 | 215.1 | 229.3 | 243.5 | 254.9 | 264.9 | 289.1 | 319.0 | 348.9 | 381.7 |
| 32.5° | 146.7 | 148.1 | 153.8 | 163.8 | 178.0 | 186.6 | 193.7 | 216.5 | 240.7 | 270.6 | 299.1 |
| 35° | 104.0 | 105.4 | 111.1 | 116.8 | 128.2 | 135.3 | 141.0 | 158.1 | 179.5 | 205.1 | 232.2 |
| 37.5° | 75.5 | 76.9 | 79.8 | 84.0 | 92.6 | 96.8 | 102.5 | 116.8 | 133.9 | 153.8 | 178.0 |
| 40° | 55.5 | 57.0 | 58.4 | 62.7 | 68.4 | 71.2 | 75.5 | 85.5 | 98.3 | 115.4 | 132.5 |
| 42.5° | 42.7 | 42.7 | 44.2 | 47.0 | 49.8 | 52.7 | 55.5 | 62.7 | 72.6 | 85.5 | 101.1 |
| 45° | 32.8 | 32.8 | 34.2 | 37.0 | 38.5 | 39.9 | 42.7 | 47.0 | 54.1 | 64.1 | 78.3 |
| 47.5° | 27.1 | 27.1 | 27.1 | 28.5 | 29.9 | 31.3 | 32.8 | 37.0 | 41.3 | 51.3 | 59.8 |
| 50° | 21.4 | 21.4 | 22.8 | 22.8 | 24.2 | 24.2 | 25.6 | 28.5 | 34.2 | 41.3 | 47.0 |
| 52.5° | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 19.9 | 19.9 | 22.8 | 28.5 | 31.3 | 34.2 |
| 55° | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 17.1 | 19.9 | 22.8 | 25.6 | 24.2 |
| 57.5° | 12.8 | 12.8 | 12.8 | 12.8 | 12.8 | 14.2 | 14.2 | 17.1 | 18.5 | 17.1 | 17.1 |
| 60° | 11.4 | 11.4 | 10.0 | 10.0 | 11.4 | 11.4 | 12.8 | 14.2 | 14.2 | 12.8 | 12.8 |
| 62.5° | 10.0 | 8.5 | 8.5 | 8.5 | 10.0 | 11.4 | 11.4 | 11.4 | 10.0 | 10.0 | 10.0 |
| 65° | 8.5 | 7.1 | 7.1 | 8.5 | 8.5 | 10.0 | 10.0 | 8.5 | 8.5 | 8.5 | 8.5 |
| 67.5° | 7.1 | 7.1 | 7.1 | 7.1 | 8.5 | 8.5 | 8.5 | 7.1 | 7.1 | 7.1 | 7.1 |
| 70° | 5.7 | 5.7 | 5.7 | 5.7 | 7.1 | 7.1 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| 72.5° | 4.3 | 4.3 | 4.3 | 5.7 | 5.7 | 5.7 | 4.3 | 4.3 | 4.3 | 5.7 | 4.3 |
| 75° | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 2.8 | 2.8 | 4.3 | 4.3 | 2.8 |
| 77.5° | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 80° | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 |



TEST NUMBER: P219776

CATALOG NUMBER: MRZ-1-REC-X-3-L30-80-FL-UNV-X-STD-LSL

CANDELA DISTRIBUTION (continued):

| | 50° | 55° | 60° | 65° | 67.5° | 70° | 75° | 80° | 85° | 90° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 | 1565.3 |
| 2.5° | 1551.0 | 1551.0 | 1549.6 | 1551.0 | 1551.0 | 1551.0 | 1551.0 | 1549.6 | 1551.0 | 1549.6 |
| 5° | 1512.6 | 1512.6 | 1512.6 | 1509.7 | 1508.3 | 1509.7 | 1508.3 | 1506.9 | 1506.9 | 1508.3 |
| 7.5° | 1447.0 | 1447.0 | 1445.6 | 1442.8 | 1442.8 | 1441.3 | 1438.5 | 1437.1 | 1435.7 | 1435.7 |
| 10° | 1361.6 | 1360.2 | 1355.9 | 1354.5 | 1354.5 | 1350.2 | 1344.5 | 1344.5 | 1338.8 | 1340.2 |
| 12.5° | 1254.8 | 1251.9 | 1250.5 | 1250.5 | 1244.8 | 1244.8 | 1240.5 | 1239.1 | 1236.3 | 1233.4 |
| 15° | 1126.6 | 1130.9 | 1133.7 | 1132.3 | 1132.3 | 1128.0 | 1126.6 | 1123.7 | 1119.5 | 1122.3 |
| 17.5° | 999.8 | 1009.8 | 1012.6 | 1016.9 | 1018.3 | 1015.5 | 1011.2 | 1004.1 | 999.8 | 997.0 |
| 20° | 874.5 | 888.7 | 898.7 | 901.6 | 901.6 | 900.1 | 898.7 | 887.3 | 885.9 | 878.8 |
| 22.5° | 744.9 | 764.8 | 781.9 | 787.6 | 789.0 | 790.5 | 784.8 | 776.2 | 773.4 | 771.9 |
| 25° | 623.8 | 650.9 | 668.0 | 679.4 | 682.2 | 686.5 | 683.6 | 679.4 | 670.8 | 669.4 |
| 27.5° | 514.2 | 542.6 | 565.4 | 579.7 | 586.8 | 589.6 | 592.5 | 585.4 | 582.5 | 576.8 |
| 30° | 415.9 | 448.6 | 472.9 | 492.8 | 497.1 | 502.8 | 504.2 | 505.6 | 499.9 | 499.9 |
| 32.5° | 331.9 | 358.9 | 388.8 | 408.8 | 417.3 | 421.6 | 428.7 | 427.3 | 427.3 | 425.9 |
| 35° | 260.6 | 287.7 | 314.8 | 336.1 | 346.1 | 351.8 | 360.3 | 364.6 | 366.0 | 366.0 |
| 37.5° | 200.8 | 227.9 | 252.1 | 277.7 | 287.7 | 294.8 | 300.5 | 301.9 | 303.4 | 301.9 |
| 40° | 153.8 | 179.5 | 203.7 | 220.8 | 227.9 | 233.6 | 240.7 | 246.4 | 249.2 | 250.7 |
| 42.5° | 121.1 | 139.6 | 155.2 | 172.3 | 183.7 | 192.3 | 193.7 | 192.3 | 192.3 | 190.9 |
| 45° | 91.2 | 105.4 | 129.6 | 133.9 | 136.7 | 138.2 | 142.4 | 143.8 | 143.8 | 143.8 |
| 47.5° | 72.6 | 88.3 | 88.3 | 94.0 | 96.8 | 101.1 | 102.5 | 102.5 | 102.5 | 102.5 |
| 50° | 54.1 | 57.0 | 61.2 | 65.5 | 66.9 | 66.9 | 68.4 | 68.4 | 68.4 | 68.4 |
| 52.5° | 35.6 | 39.9 | 41.3 | 42.7 | 44.2 | 45.6 | 48.4 | 49.8 | 48.4 | 48.4 |
| 55° | 25.6 | 27.1 | 28.5 | 31.3 | 31.3 | 32.8 | 38.5 | 38.5 | 38.5 | 38.5 |
| 57.5° | 17.1 | 18.5 | 21.4 | 25.6 | 25.6 | 27.1 | 28.5 | 28.5 | 29.9 | 29.9 |
| 60° | 14.2 | 15.7 | 17.1 | 18.5 | 19.9 | 22.8 | 25.6 | 21.4 | 21.4 | 21.4 |
| 62.5° | 11.4 | 12.8 | 14.2 | 15.7 | 14.2 | 15.7 | 17.1 | 17.1 | 17.1 | 17.1 |
| 65° | 10.0 | 11.4 | 10.0 | 11.4 | 12.8 | 12.8 | 11.4 | 12.8 | 12.8 | 14.2 |
| 67.5° | 8.5 | 8.5 | 8.5 | 8.5 | 8.5 | 10.0 | 12.8 | 14.2 | 15.7 | 15.7 |
| 70° | 5.7 | 5.7 | 5.7 | 8.5 | 8.5 | 10.0 | 11.4 | 14.2 | 14.2 | 15.7 |
| 72.5° | 4.3 | 4.3 | 5.7 | 7.1 | 8.5 | 8.5 | 10.0 | 10.0 | 11.4 | 11.4 |
| 75° | 4.3 | 4.3 | 5.7 | 5.7 | 5.7 | 5.7 | 7.1 | 7.1 | 7.1 | 7.1 |
| 77.5° | 2.8 | 2.8 | 2.8 | 2.8 | 4.3 | 4.3 | 4.3 | 5.7 | 5.7 | 5.7 |
| 80° | 1.4 | 1.4 | 1.4 | 1.4 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 82.5° | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 0.0 | 0.0 | 1.4 | 1.4 | 1.4 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 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 |

(END OF REPORT)