

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: NEO-RAY

Report Number: P243390

Luminaire Tested: **S123RDR-H340D830-X4F0-XX-UDD-F-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243390
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-64)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123RDR-H340D830-X4F0-XX-UDD-F-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1159.9 lumens
Efficiency: N/A
Efficacy: 103.6 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

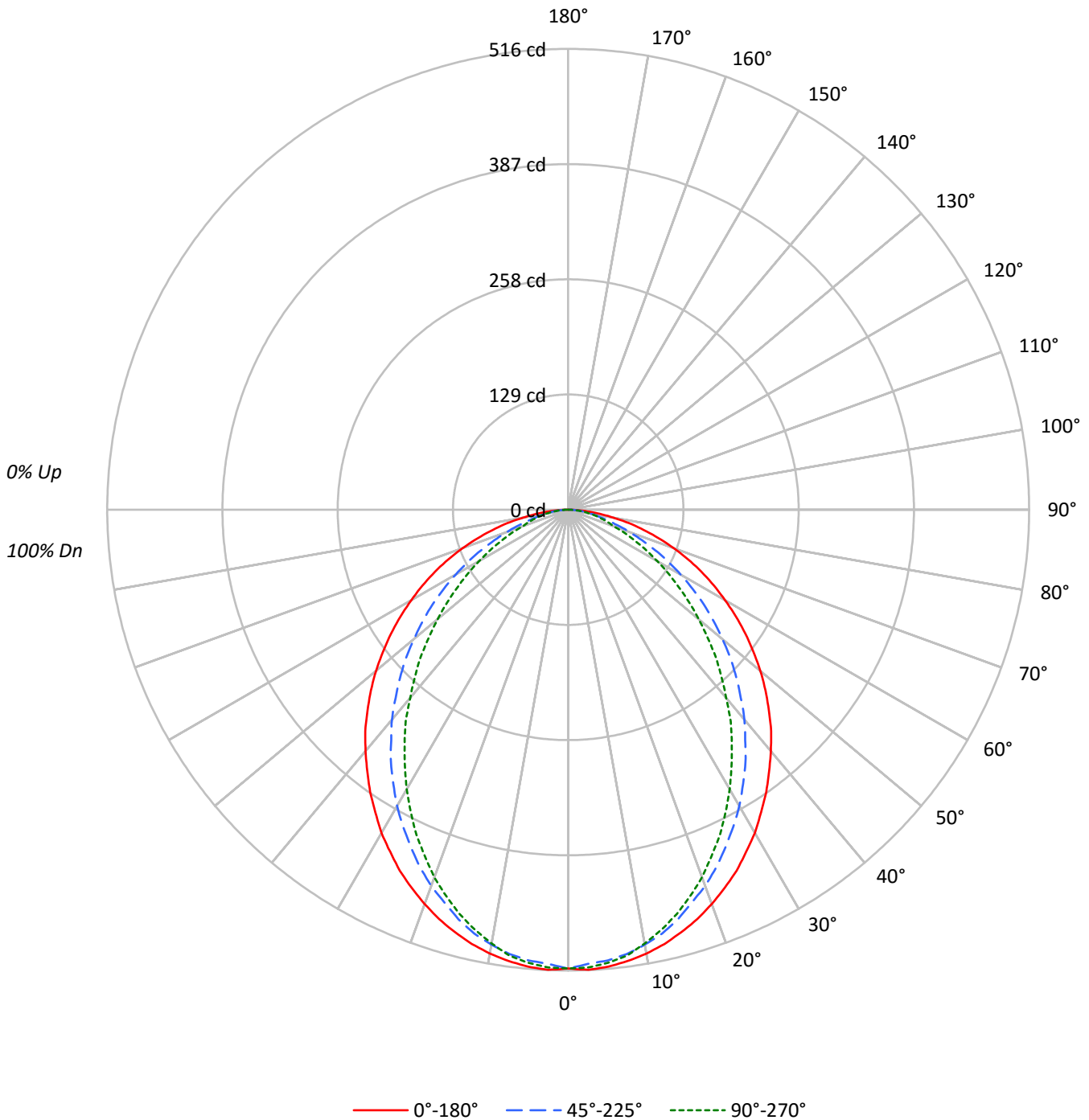
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P243390

CATALOG NUMBER: S123RDR-H340D830-X4F0-XX-UDD-F-W

Luminous Intensity Polar Plot





TEST NUMBER: P243390

CATALOG NUMBER: S123RDR-H340D830-X4F0-XX-UDD-F-W

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 | 110 | 105 | 101 | 98 | 107 | 103 | 99 | 96 | 99 | 96 | 93 | 95 | 93 | 90 | 91 | 89 | 88 | 86 | | | | | 86 | | | |
| 2 | 101 | 93 | 87 | 81 | 98 | 91 | 85 | 80 | 87 | 83 | 78 | 84 | 80 | 77 | 81 | 78 | 75 | 73 | | | | | 73 | | | |
| 3 | 92 | 82 | 75 | 69 | 90 | 81 | 74 | 68 | 78 | 72 | 67 | 75 | 70 | 66 | 73 | 68 | 65 | 62 | | | | | 62 | | | |
| 4 | 85 | 73 | 65 | 59 | 83 | 72 | 64 | 58 | 70 | 63 | 58 | 67 | 62 | 57 | 65 | 60 | 56 | 54 | | | | | 54 | | | |
| 5 | 78 | 66 | 58 | 51 | 76 | 65 | 57 | 51 | 63 | 56 | 50 | 61 | 55 | 50 | 59 | 54 | 49 | 47 | | | | | 47 | | | |
| 6 | 73 | 60 | 51 | 45 | 71 | 59 | 51 | 45 | 57 | 50 | 45 | 56 | 49 | 44 | 54 | 48 | 44 | 42 | | | | | 42 | | | |
| 7 | 67 | 55 | 46 | 40 | 66 | 54 | 46 | 40 | 52 | 45 | 40 | 51 | 44 | 40 | 49 | 44 | 39 | 37 | | | | | 37 | | | |
| 8 | 63 | 50 | 42 | 36 | 61 | 49 | 41 | 36 | 48 | 41 | 36 | 47 | 40 | 36 | 46 | 40 | 35 | 34 | | | | | 34 | | | |
| 9 | 59 | 46 | 38 | 33 | 58 | 45 | 38 | 33 | 44 | 37 | 32 | 43 | 37 | 32 | 42 | 36 | 32 | 30 | | | | | 30 | | | |
| 10 | 55 | 43 | 35 | 30 | 54 | 42 | 35 | 30 | 41 | 34 | 30 | 40 | 34 | 30 | 39 | 34 | 29 | 28 | | | | | 28 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 6227 | 6227 | 6227 |
| 5° | 6250 | 6164 | 6198 |
| 10° | 6212 | 6085 | 6070 |
| 15° | 6145 | 5957 | 5883 |
| 20° | 6061 | 5781 | 5650 |
| 25° | 5964 | 5573 | 5372 |
| 30° | 5849 | 5362 | 5058 |
| 35° | 5716 | 5120 | 4723 |
| 40° | 5582 | 4858 | 4351 |
| 45° | 5444 | 4565 | 4004 |
| 50° | 5297 | 4249 | 3602 |
| 55° | 5120 | 3920 | 3193 |
| 60° | 4916 | 3530 | 2783 |
| 65° | 4718 | 3089 | 2378 |
| 70° | 4448 | 2587 | 1903 |
| 75° | 4103 | 2051 | 1812 |
| 80° | 3581 | 1815 | 1654 |
| 85° | 3018 | 1585 | 1530 |



TEST NUMBER: P243390

CATALOG NUMBER: S123RDR-H340D830-X4F0-XX-UDD-F-W

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 48.3 | 4.2 |
| 10°-20° | 134.6 | 11.6 |
| 20°-30° | 193.7 | 16.7 |
| 30°-40° | 218.2 | 18.8 |
| 40°-50° | 208.4 | 18.0 |
| 50°-60° | 170.4 | 14.7 |
| 60°-70° | 114.4 | 9.9 |
| 70°-80° | 57.1 | 4.9 |
| 80°-90° | 14.8 | 1.3 |
| 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°-30° | 376.6 | 32.5 |
| 0°-40° | 594.8 | 51.3 |
| 0°-60° | 973.6 | 83.9 |
| 0°-90° | 1159.9 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1159.9 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 514 | 514 | 514 | 514 | 514 | |
| 5° | 514 | 512 | 507 | 511 | 509 | 49 |
| 15° | 490 | 486 | 475 | 472 | 469 | 138 |
| 25° | 446 | 436 | 417 | 408 | 402 | 205 |
| 35° | 386 | 371 | 346 | 327 | 319 | 241 |
| 45° | 318 | 299 | 266 | 243 | 234 | 245 |
| 55° | 242 | 221 | 186 | 160 | 151 | 216 |
| 65° | 164 | 142 | 108 | 88 | 83 | 163 |
| 75° | 88 | 67 | 44 | 40 | 39 | 93 |
| 85° | 22 | 13 | 11 | 11 | 11 | 25 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P243390

CATALOG NUMBER: S123RDR-H340D830-X4F0-XX-UDD-F-W

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 10° | 15° | 20° | 22.5° | 25° | 30° | 35° | 40° | 45° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 |
| 2.5° | 515.7 | 514.5 | 513.0 | 513.3 | 513.7 | 514.1 | 514.1 | 513.7 | 512.6 | 511.0 | 509.0 |
| 5° | 513.7 | 512.6 | 511.0 | 511.0 | 511.8 | 511.8 | 511.8 | 511.4 | 510.2 | 508.6 | 506.6 |
| 7.5° | 509.8 | 509.0 | 507.0 | 507.4 | 507.8 | 507.8 | 507.8 | 507.4 | 505.8 | 503.9 | 501.9 |
| 10° | 504.7 | 503.5 | 501.9 | 501.9 | 502.3 | 502.3 | 502.3 | 501.5 | 499.5 | 497.2 | 494.4 |
| 12.5° | 498.0 | 496.8 | 495.2 | 495.2 | 495.2 | 495.2 | 495.2 | 494.0 | 490.9 | 488.5 | 486.1 |
| 15° | 489.7 | 488.5 | 486.9 | 486.9 | 486.5 | 486.1 | 485.3 | 483.4 | 480.6 | 477.8 | 474.7 |
| 17.5° | 480.6 | 479.0 | 477.0 | 476.6 | 476.3 | 475.9 | 474.7 | 473.5 | 469.5 | 465.6 | 460.9 |
| 20° | 469.9 | 468.4 | 466.4 | 466.0 | 464.8 | 463.6 | 462.8 | 460.5 | 456.1 | 451.4 | 448.2 |
| 22.5° | 458.1 | 456.5 | 454.6 | 453.8 | 451.4 | 450.6 | 449.4 | 445.9 | 441.1 | 436.8 | 433.2 |
| 25° | 445.9 | 443.9 | 441.5 | 440.3 | 437.6 | 436.0 | 435.6 | 430.5 | 425.7 | 421.0 | 416.7 |
| 27.5° | 431.7 | 430.1 | 428.1 | 425.7 | 423.0 | 421.0 | 420.2 | 415.5 | 409.6 | 404.0 | 400.1 |
| 30° | 417.9 | 415.5 | 413.5 | 410.8 | 406.8 | 404.8 | 403.3 | 398.5 | 393.4 | 386.7 | 383.1 |
| 32.5° | 401.7 | 400.1 | 397.7 | 395.0 | 391.0 | 389.4 | 387.1 | 381.2 | 374.5 | 369.7 | 364.2 |
| 35° | 386.3 | 384.7 | 381.2 | 378.4 | 372.9 | 371.3 | 368.9 | 363.8 | 356.3 | 350.8 | 346.0 |
| 37.5° | 369.3 | 367.4 | 364.6 | 360.6 | 355.9 | 353.9 | 350.8 | 345.6 | 337.0 | 331.4 | 325.5 |
| 40° | 352.8 | 350.0 | 346.8 | 342.5 | 337.8 | 335.8 | 333.0 | 325.5 | 318.4 | 312.1 | 307.0 |
| 42.5° | 336.2 | 333.0 | 329.1 | 325.1 | 320.0 | 317.2 | 314.1 | 307.0 | 299.1 | 293.2 | 286.1 |
| 45° | 317.6 | 315.3 | 311.3 | 306.6 | 300.7 | 298.7 | 295.1 | 287.6 | 279.8 | 273.4 | 266.3 |
| 47.5° | 299.5 | 296.7 | 292.8 | 288.0 | 282.1 | 279.4 | 275.8 | 268.3 | 260.4 | 252.5 | 246.2 |
| 50° | 280.9 | 278.2 | 273.4 | 268.7 | 263.2 | 259.6 | 256.5 | 249.0 | 240.3 | 233.2 | 225.3 |
| 52.5° | 261.2 | 258.8 | 254.9 | 250.2 | 243.1 | 240.3 | 237.1 | 228.9 | 220.6 | 212.3 | 205.2 |
| 55° | 242.3 | 240.7 | 236.0 | 231.2 | 223.7 | 220.6 | 217.4 | 208.7 | 200.4 | 192.2 | 185.5 |
| 57.5° | 222.5 | 221.4 | 216.6 | 211.1 | 204.4 | 201.2 | 197.3 | 188.6 | 180.7 | 172.4 | 165.3 |
| 60° | 202.8 | 201.6 | 196.9 | 191.4 | 185.1 | 181.1 | 176.8 | 170.1 | 161.0 | 153.5 | 145.6 |
| 62.5° | 183.9 | 182.3 | 178.3 | 172.4 | 165.3 | 161.4 | 157.4 | 149.5 | 141.3 | 133.4 | 126.3 |
| 65° | 164.5 | 162.6 | 157.8 | 151.9 | 145.2 | 141.7 | 137.7 | 130.2 | 121.9 | 114.4 | 107.7 |
| 67.5° | 145.2 | 143.2 | 138.1 | 133.4 | 125.5 | 121.9 | 118.4 | 110.9 | 103.0 | 95.5 | 89.2 |
| 70° | 125.5 | 123.5 | 119.6 | 113.2 | 106.5 | 103.0 | 99.4 | 91.5 | 84.4 | 78.9 | 73.0 |
| 72.5° | 106.1 | 104.6 | 100.6 | 94.7 | 88.4 | 84.8 | 80.9 | 74.2 | 67.9 | 61.9 | 57.6 |
| 75° | 87.6 | 85.2 | 81.7 | 76.2 | 69.8 | 66.7 | 63.9 | 57.2 | 51.3 | 47.3 | 43.8 |
| 77.5° | 69.8 | 67.1 | 63.1 | 58.8 | 52.9 | 49.7 | 47.0 | 41.4 | 37.5 | 34.7 | 33.9 |
| 80° | 51.3 | 50.9 | 47.0 | 42.2 | 37.1 | 34.7 | 32.0 | 28.4 | 27.2 | 26.8 | 26.0 |
| 82.5° | 35.9 | 34.3 | 31.2 | 26.8 | 22.9 | 21.3 | 20.5 | 19.7 | 18.9 | 18.9 | 18.2 |
| 85° | 21.7 | 20.1 | 17.4 | 13.8 | 13.0 | 12.6 | 12.2 | 12.2 | 11.8 | 11.4 | 11.4 |
| 87.5° | 9.5 | 7.9 | 5.9 | 5.5 | 5.1 | 5.1 | 5.5 | 5.5 | 5.5 | 5.1 | 5.1 |
| 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: P243390

CATALOG NUMBER: S123RDR-H340D830-X4F0-XX-UDD-F-W

CANDELA DISTRIBUTION (continued):

| | 50° | 55° | 60° | 65° | 67.5° | 70° | 75° | 80° | 85° | 90° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 | 513.7 |
| 2.5° | 509.8 | 511.8 | 513.0 | 513.3 | 513.3 | 513.3 | 513.7 | 513.7 | 513.3 | 513.0 |
| 5° | 507.0 | 509.0 | 509.8 | 510.6 | 510.6 | 510.6 | 510.6 | 510.6 | 510.2 | 509.4 |
| 7.5° | 502.7 | 503.9 | 505.1 | 504.7 | 504.7 | 504.3 | 503.9 | 504.3 | 503.5 | 503.5 |
| 10° | 494.8 | 496.0 | 496.8 | 495.6 | 495.6 | 496.0 | 496.0 | 495.6 | 494.4 | 493.2 |
| 12.5° | 485.7 | 486.9 | 485.7 | 486.1 | 485.3 | 484.5 | 484.1 | 483.8 | 482.6 | 481.8 |
| 15° | 473.9 | 473.9 | 473.1 | 473.1 | 471.9 | 470.3 | 469.9 | 470.3 | 468.8 | 468.8 |
| 17.5° | 460.9 | 460.1 | 458.9 | 458.1 | 457.7 | 457.7 | 456.1 | 456.1 | 454.2 | 453.8 |
| 20° | 446.7 | 445.9 | 444.7 | 442.7 | 441.9 | 442.3 | 440.7 | 439.6 | 438.4 | 438.0 |
| 22.5° | 431.7 | 429.7 | 428.5 | 426.5 | 425.0 | 425.0 | 423.8 | 421.8 | 420.6 | 419.4 |
| 25° | 414.7 | 412.7 | 410.4 | 408.8 | 407.6 | 405.6 | 404.8 | 403.3 | 402.1 | 401.7 |
| 27.5° | 397.3 | 394.2 | 391.0 | 389.4 | 388.7 | 386.3 | 385.1 | 384.3 | 382.0 | 381.6 |
| 30° | 378.8 | 376.4 | 372.5 | 369.7 | 367.7 | 368.1 | 365.4 | 363.8 | 362.6 | 361.4 |
| 32.5° | 361.0 | 357.1 | 353.1 | 349.6 | 347.2 | 346.8 | 344.1 | 342.5 | 341.3 | 340.1 |
| 35° | 340.9 | 337.0 | 332.2 | 329.1 | 326.7 | 325.5 | 322.8 | 322.0 | 320.0 | 319.2 |
| 37.5° | 320.8 | 316.5 | 311.7 | 307.8 | 306.2 | 303.4 | 302.2 | 300.3 | 298.7 | 298.7 |
| 40° | 301.1 | 295.9 | 291.2 | 286.5 | 284.5 | 282.9 | 279.8 | 278.2 | 276.2 | 275.0 |
| 42.5° | 280.5 | 274.6 | 270.3 | 265.9 | 263.2 | 262.0 | 258.4 | 256.5 | 254.5 | 254.1 |
| 45° | 260.0 | 254.1 | 248.6 | 244.2 | 243.1 | 240.7 | 237.1 | 234.4 | 234.0 | 233.6 |
| 47.5° | 239.1 | 233.2 | 228.1 | 223.3 | 221.8 | 219.0 | 216.6 | 214.7 | 212.3 | 211.1 |
| 50° | 219.0 | 213.1 | 207.5 | 202.4 | 200.4 | 198.1 | 195.7 | 192.9 | 192.2 | 191.0 |
| 52.5° | 198.9 | 192.2 | 186.2 | 181.5 | 179.9 | 178.0 | 175.2 | 172.8 | 171.6 | 170.9 |
| 55° | 178.3 | 171.6 | 166.5 | 161.8 | 159.8 | 158.6 | 155.5 | 153.5 | 151.9 | 151.1 |
| 57.5° | 158.2 | 151.5 | 146.8 | 143.2 | 140.5 | 139.3 | 136.1 | 134.2 | 133.4 | 133.0 |
| 60° | 139.3 | 133.0 | 127.8 | 124.3 | 121.9 | 120.7 | 118.4 | 116.4 | 115.2 | 114.8 |
| 62.5° | 120.3 | 114.8 | 110.1 | 106.5 | 105.0 | 103.4 | 101.4 | 99.8 | 98.6 | 98.6 |
| 65° | 102.2 | 96.7 | 92.3 | 89.6 | 88.0 | 87.2 | 84.8 | 84.0 | 82.9 | 82.9 |
| 67.5° | 84.4 | 80.5 | 77.3 | 73.8 | 72.6 | 72.6 | 70.2 | 69.4 | 68.7 | 68.7 |
| 70° | 69.1 | 65.5 | 61.9 | 60.0 | 58.8 | 58.4 | 56.4 | 55.2 | 54.5 | 53.7 |
| 72.5° | 54.1 | 50.9 | 47.7 | 47.3 | 47.3 | 47.0 | 47.0 | 46.2 | 46.2 | 46.6 |
| 75° | 41.4 | 40.6 | 39.9 | 39.9 | 39.5 | 39.1 | 39.1 | 38.7 | 38.7 | 38.7 |
| 77.5° | 33.1 | 32.7 | 32.4 | 32.0 | 32.0 | 31.6 | 31.2 | 31.2 | 31.2 | 31.2 |
| 80° | 25.3 | 24.9 | 24.9 | 24.5 | 24.1 | 24.5 | 24.1 | 24.1 | 23.7 | 23.7 |
| 82.5° | 17.8 | 17.8 | 17.8 | 17.4 | 17.4 | 17.4 | 17.4 | 17.0 | 17.0 | 17.4 |
| 85° | 11.0 | 11.0 | 11.0 | 11.0 | 10.7 | 11.0 | 10.7 | 10.7 | 10.7 | 11.0 |
| 87.5° | 4.7 | 5.1 | 4.7 | 5.1 | 5.1 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)