

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: METALUX

Report Number: RKS180522020-10

Luminaire Tested: **LHB-24-UNV-L850-CD-U**

Issue Date: 3/3/2020

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.



Test Information

Test Method: LM-41-14
Report Number: RKS180522020-10
Test Lab: BAY AREA COMPLIANCE LABS
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: LHB-24-UNV-L850-CD-U
Description: High Bay Luminaires for Commercial and Industrial Buildings
Light Source: -
Ballast/Driver: -

| Luminaire Equipment: | <u>Sample No.</u> | <u>Condition</u> | <u>Description</u> |
|----------------------|-------------------|------------------|---------------------------|
| | AS-5443-1 | Good | WHITE TWIN R-EVOLVE FLOOD |
| | AS-5443-2 | Good | REFLECTOR |
| | AS-5443-3 | Good | DRIVER |
| | AS-5443-4 | Good | UPPER MODULE |
| | AS-5443-5 | Good | LENS |
| | AS-5443-6 | Good | DRIVER 2 |
| | AS-5443-7 | Good | TRIM RING |

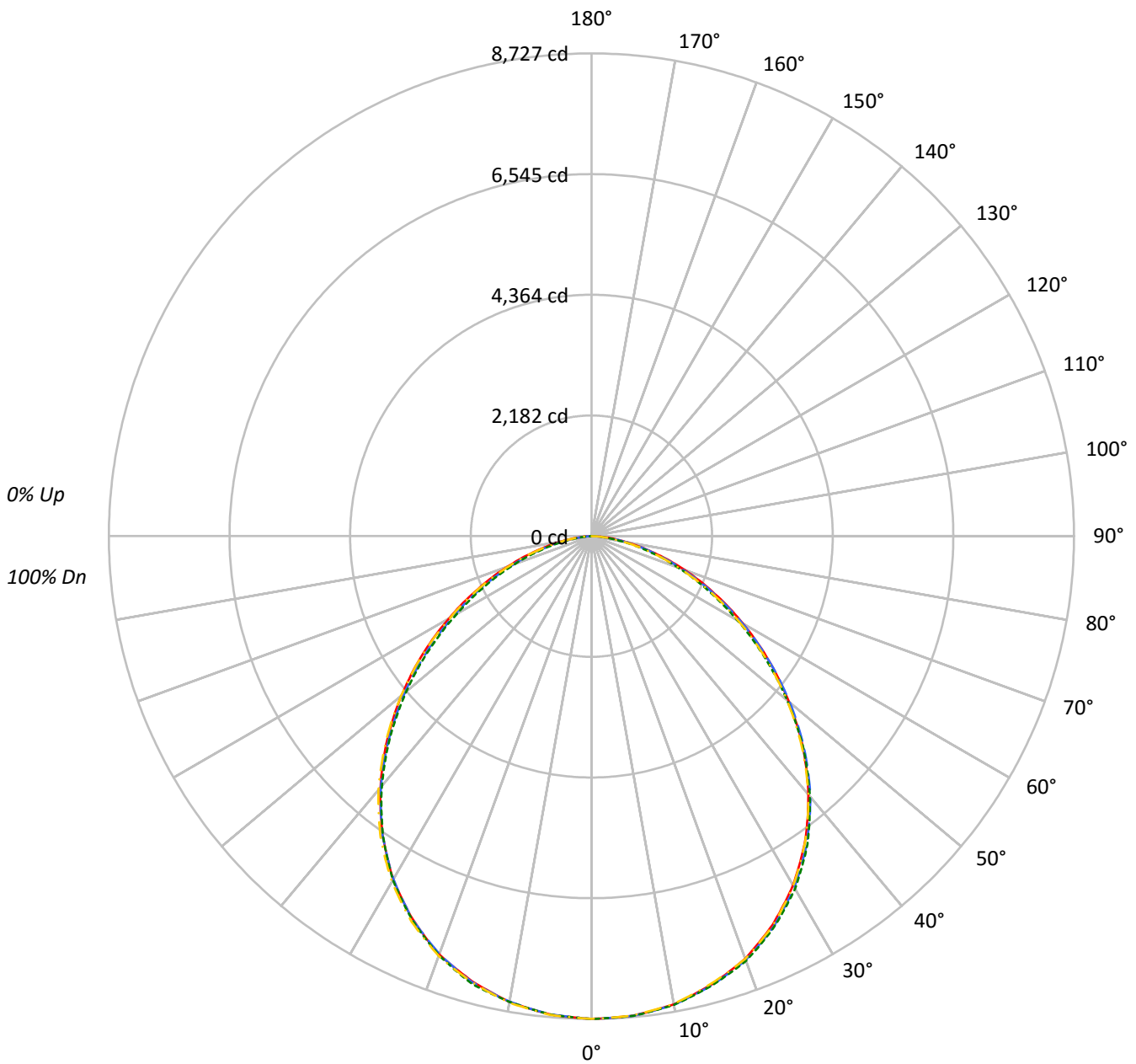
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 22050.2 lumens
Efficiency: N/A
Efficacy: 127.8 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 1.23 / 1.32
Luminous Opening: Rectangular (W 0.99' x L: 1.92' x H: 0')
CIE Type: Direct

Input Watts (W): 172.52
Input Voltage (V): NR
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: RKS180522020-10
CATALOG NUMBER: LHB-24-UNV-L850-CD-U

Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270° - · - 135°-315°



TEST NUMBER: RKS180522020-10
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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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 110 | 105 | 101 | 98 | 107 | 103 | 99 | 96 | 99 | 96 | 93 | 95 | 92 | 90 | 91 | 89 | 87 | 85 |
| 2 | 100 | 92 | 86 | 81 | 98 | 91 | 85 | 80 | 87 | 82 | 78 | 84 | 80 | 76 | 81 | 77 | 74 | 72 |
| 3 | 92 | 82 | 74 | 68 | 89 | 80 | 73 | 67 | 77 | 71 | 66 | 75 | 69 | 65 | 72 | 68 | 64 | 62 |
| 4 | 84 | 73 | 64 | 58 | 82 | 71 | 64 | 58 | 69 | 62 | 57 | 67 | 61 | 56 | 65 | 59 | 55 | 53 |
| 5 | 78 | 65 | 57 | 50 | 76 | 64 | 56 | 50 | 62 | 55 | 49 | 60 | 54 | 49 | 58 | 53 | 48 | 46 |
| 6 | 72 | 59 | 50 | 44 | 70 | 58 | 50 | 44 | 56 | 49 | 44 | 55 | 48 | 43 | 53 | 47 | 43 | 41 |
| 7 | 67 | 54 | 45 | 39 | 65 | 53 | 45 | 39 | 51 | 44 | 39 | 50 | 43 | 38 | 49 | 43 | 38 | 36 |
| 8 | 62 | 49 | 41 | 35 | 61 | 48 | 40 | 35 | 47 | 40 | 35 | 46 | 39 | 34 | 45 | 39 | 34 | 32 |
| 9 | 58 | 45 | 37 | 32 | 57 | 44 | 37 | 32 | 43 | 36 | 31 | 42 | 36 | 31 | 41 | 35 | 31 | 29 |
| 10 | 55 | 42 | 34 | 29 | 53 | 41 | 34 | 29 | 40 | 33 | 29 | 39 | 33 | 28 | 38 | 32 | 28 | 27 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 90° | 180° | 270° |
|-----|-------|-------|-------|-------|
| 0° | 49467 | 49467 | 49467 | 49467 |
| 5° | 49502 | 49529 | 49379 | 49379 |
| 10° | 49468 | 49518 | 49206 | 49202 |
| 15° | 49246 | 49365 | 48888 | 49151 |
| 20° | 49042 | 49307 | 48538 | 48629 |
| 25° | 48487 | 48829 | 47819 | 47921 |
| 30° | 47717 | 48198 | 46910 | 46990 |
| 35° | 46626 | 47123 | 45573 | 45522 |
| 40° | 45165 | 45483 | 43924 | 43644 |
| 45° | 43397 | 43433 | 41922 | 41294 |
| 50° | 41133 | 40775 | 39534 | 38510 |
| 55° | 38660 | 37836 | 36838 | 35384 |
| 60° | 35891 | 34599 | 33655 | 31820 |
| 65° | 32952 | 31276 | 30347 | 28226 |
| 70° | 29750 | 27735 | 26740 | 24363 |
| 75° | 25896 | 23612 | 22646 | 19655 |
| 80° | 21666 | 18862 | 17484 | 14249 |
| 85° | 17164 | 12514 | 11128 | 6667 |



TEST NUMBER: RKS180522020-10
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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 825.7 | 3.7 |
| 10°-20° | 2363.3 | 10.7 |
| 20°-30° | 3554.7 | 16.1 |
| 30°-40° | 4174.7 | 18.9 |
| 40°-50° | 4092.1 | 18.6 |
| 50°-60° | 3374.0 | 15.3 |
| 60°-70° | 2284.1 | 10.4 |
| 70°-80° | 1131.4 | 5.1 |
| 80°-90° | 250.2 | 1.1 |
| 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° | 6743.8 | 30.6 |
| 0°-40° | 10918.4 | 49.5 |
| 0°-60° | 18384.5 | 83.4 |
| 0°-90° | 22050.2 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 22050.2 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 90° | 180° | 270° | 360° | Flux |
|------|------|------|------|------|------|------|
| 0° | 8727 | 8727 | 8727 | 8727 | 8727 | |
| 5° | 8700 | 8704 | 8678 | 8678 | 8700 | 827 |
| 15° | 8392 | 8412 | 8330 | 8375 | 8392 | 2369 |
| 25° | 7752 | 7807 | 7645 | 7662 | 7752 | 3569 |
| 35° | 6738 | 6810 | 6586 | 6578 | 6738 | 4208 |
| 45° | 5413 | 5418 | 5229 | 5151 | 5413 | 4169 |
| 55° | 3912 | 3828 | 3728 | 3580 | 3912 | 3501 |
| 65° | 2457 | 2332 | 2262 | 2104 | 2457 | 2443 |
| 75° | 1182 | 1078 | 1034 | 897 | 1182 | 1272 |
| 85° | 264 | 192 | 171 | 102 | 264 | 306 |
| 90° | 0 | 0 | 0 | 0 | 0 | 36 |
| 95° | 0 | 0 | 0 | 0 | 0 | 0 |
| 105° | 0 | 0 | 0 | 0 | 0 | 0 |
| 115° | 0 | 0 | 0 | 0 | 0 | 0 |
| 125° | 0 | 0 | 0 | 0 | 0 | 0 |
| 135° | 0 | 0 | 0 | 0 | 0 | 0 |
| 145° | 0 | 0 | 0 | 0 | 0 | 0 |
| 155° | 0 | 0 | 0 | 0 | 0 | 0 |
| 165° | 0 | 0 | 0 | 0 | 0 | 0 |
| 175° | 0 | 0 | 0 | 0 | 0 | 0 |
| 180° | 0 | 0 | 0 | 0 | 0 | 0 |



TEST NUMBER: RKS180522020-10
 CATALOG NUMBER: LHB-24-UNV-L850-CD-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 8726.6 | 8726.6 | 8726.6 | 8726.6 | 8726.6 | 8726.6 | 8726.6 | 8726.6 | 8726.6 | 8726.6 | 8726.6 |
| 5° | 8699.5 | 8702.8 | 8703.4 | 8706.4 | 8704.3 | 8700.9 | 8695.2 | 8689.2 | 8677.8 | 8674.7 | 8674.9 |
| 10° | 8594.1 | 8598.8 | 8601.5 | 8606.7 | 8602.8 | 8596.8 | 8585.3 | 8573.2 | 8548.7 | 8544.5 | 8544.4 |
| 15° | 8391.5 | 8404.8 | 8406.7 | 8405.9 | 8411.8 | 8396.5 | 8374.2 | 8361.1 | 8330.5 | 8329.6 | 8346.5 |
| 20° | 8129.9 | 8151.2 | 8157.5 | 8180.5 | 8173.8 | 8160.6 | 8134.2 | 8104.6 | 8046.2 | 8043.1 | 8038.8 |
| 25° | 7752.2 | 7771.5 | 7792.7 | 7817.7 | 7806.9 | 7793.6 | 7764.9 | 7720.9 | 7645.4 | 7641.6 | 7647.6 |
| 30° | 7290.0 | 7312.8 | 7337.9 | 7365.2 | 7363.5 | 7342.7 | 7298.5 | 7253.6 | 7166.7 | 7151.0 | 7161.4 |
| 35° | 6737.8 | 6764.9 | 6790.2 | 6823.9 | 6809.7 | 6787.0 | 6741.2 | 6695.2 | 6585.7 | 6578.7 | 6585.6 |
| 40° | 6103.6 | 6131.6 | 6161.6 | 6173.3 | 6146.6 | 6129.6 | 6106.3 | 6048.8 | 5935.8 | 5923.4 | 5923.3 |
| 45° | 5413.4 | 5440.2 | 5444.0 | 5449.8 | 5417.9 | 5403.4 | 5380.2 | 5349.1 | 5229.4 | 5213.1 | 5175.8 |
| 50° | 4664.3 | 4702.5 | 4686.9 | 4662.5 | 4623.7 | 4628.6 | 4619.6 | 4591.5 | 4483.0 | 4443.8 | 4404.4 |
| 55° | 3911.8 | 3935.2 | 3914.2 | 3877.3 | 3828.5 | 3843.9 | 3845.2 | 3832.8 | 3727.5 | 3680.3 | 3626.3 |
| 60° | 3165.8 | 3181.9 | 3149.6 | 3097.6 | 3051.8 | 3065.3 | 3076.5 | 3076.8 | 2968.6 | 2935.1 | 2871.6 |
| 65° | 2456.7 | 2462.8 | 2417.7 | 2376.8 | 2331.8 | 2329.9 | 2362.6 | 2367.0 | 2262.5 | 2229.9 | 2167.9 |
| 70° | 1795.0 | 1796.9 | 1747.0 | 1699.2 | 1673.4 | 1670.1 | 1681.0 | 1691.4 | 1613.4 | 1582.3 | 1512.8 |
| 75° | 1182.4 | 1195.4 | 1149.0 | 1106.5 | 1078.1 | 1076.4 | 1090.4 | 1097.3 | 1034.0 | 1007.0 | 940.6 |
| 80° | 663.7 | 675.7 | 642.2 | 600.9 | 577.8 | 577.2 | 581.4 | 595.1 | 535.6 | 513.3 | 471.5 |
| 85° | 263.9 | 263.4 | 242.7 | 218.6 | 192.4 | 191.4 | 203.2 | 208.0 | 171.1 | 147.2 | 122.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 95° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 100° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 105° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 110° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 115° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 120° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 125° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 130° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 135° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 140° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 145° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 150° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 155° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 160° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 165° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 170° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 175° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 180° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



TEST NUMBER: RKS180522020-10
 CATALOG NUMBER: LHB-24-UNV-L850-CD-U

CANDELA DISTRIBUTION (continued):

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|------|--------|--------|--------|--------|--------|--------|
| 0° | 8726.6 | 8726.6 | 8726.6 | 8726.6 | 8726.6 | 8726.6 |
| 5° | 8675.2 | 8677.9 | 8680.0 | 8684.0 | 8687.2 | 8699.5 |
| 10° | 8545.0 | 8547.9 | 8552.6 | 8561.8 | 8567.1 | 8594.1 |
| 15° | 8366.9 | 8375.4 | 8395.5 | 8348.7 | 8339.4 | 8391.5 |
| 20° | 8051.3 | 8061.3 | 8064.8 | 8076.4 | 8084.6 | 8129.9 |
| 25° | 7661.5 | 7661.8 | 7679.6 | 7692.3 | 7697.5 | 7752.2 |
| 30° | 7174.3 | 7179.0 | 7198.2 | 7214.0 | 7221.8 | 7290.0 |
| 35° | 6578.2 | 6578.3 | 6623.7 | 6646.5 | 6653.4 | 6737.8 |
| 40° | 5898.9 | 5898.0 | 5950.6 | 5994.6 | 6009.1 | 6103.6 |
| 45° | 5153.1 | 5151.1 | 5194.2 | 5257.6 | 5307.1 | 5413.4 |
| 50° | 4371.3 | 4366.9 | 4411.9 | 4492.0 | 4561.3 | 4664.3 |
| 55° | 3585.8 | 3580.3 | 3620.7 | 3713.8 | 3786.0 | 3911.8 |
| 60° | 2814.6 | 2806.7 | 2862.0 | 2943.0 | 3040.5 | 3165.8 |
| 65° | 2120.2 | 2104.4 | 2155.3 | 2244.8 | 2330.3 | 2456.7 |
| 70° | 1473.8 | 1470.0 | 1503.4 | 1585.4 | 1675.1 | 1795.0 |
| 75° | 909.6 | 897.4 | 938.5 | 1006.3 | 1089.5 | 1182.4 |
| 80° | 435.4 | 436.5 | 465.3 | 523.2 | 585.3 | 663.7 |
| 85° | 104.1 | 102.5 | 123.2 | 162.0 | 198.8 | 263.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 95° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 100° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 105° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 110° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 115° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 120° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 125° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 130° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 135° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 140° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 145° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 150° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 155° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 160° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 165° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 170° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 175° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 180° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)