

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: RKS180330002-10

Luminaire Tested: **LHB-18-UNV-L850-CD-U w/out lens**

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: RKS180330002-10  
Test Lab: BAY AREA COMPLIANCE LABS  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: LHB-18-UNV-L850-CD-U w/out lens  
Description: High Bay Luminaires for Commercial and Industrial Buildings  
Light Source: -  
Ballast/Driver: -

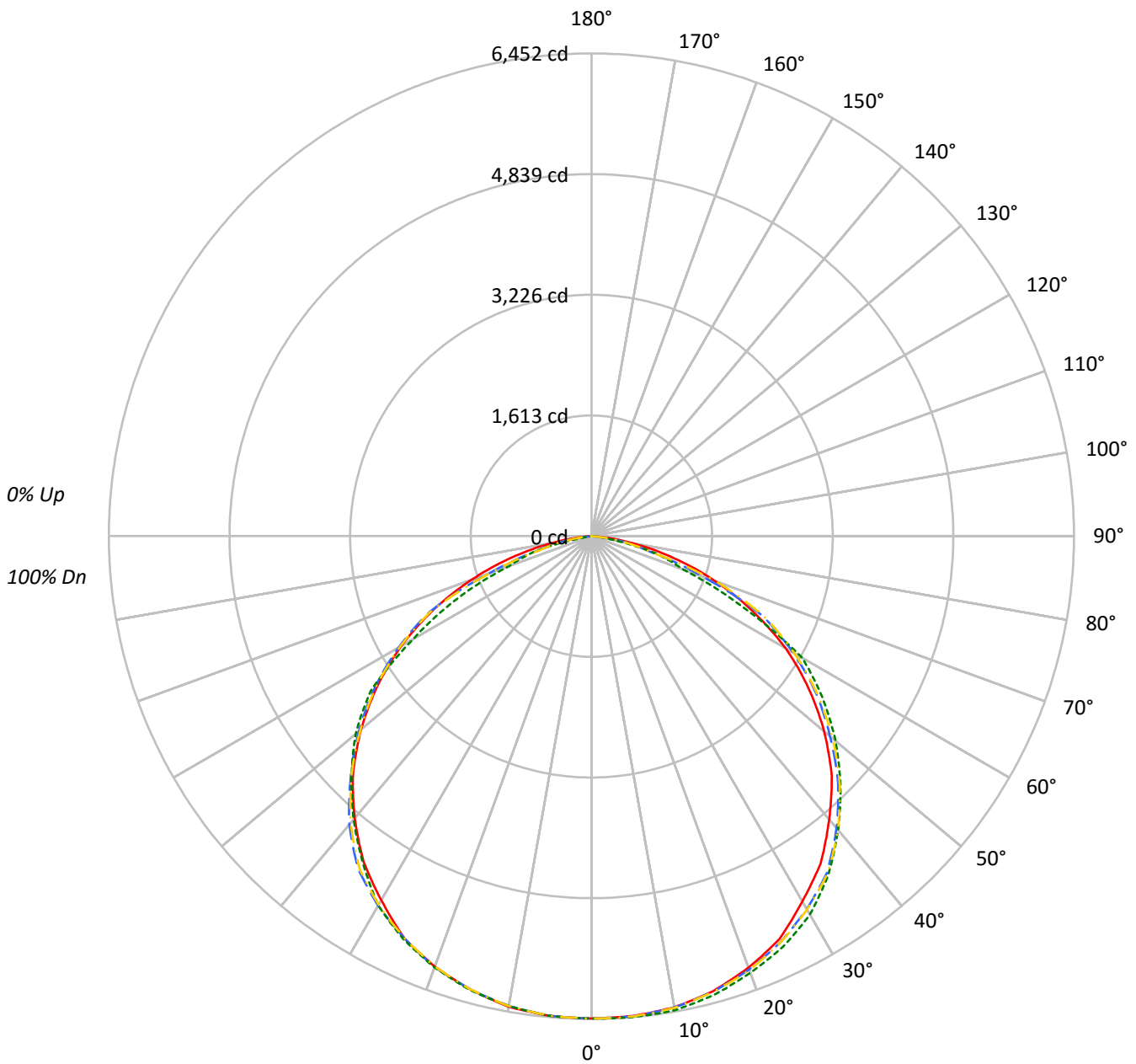
| Luminaire Equipment: | <u>Sample No.</u> | <u>Condition</u> | <u>Description</u>        |
|----------------------|-------------------|------------------|---------------------------|
|                      | AS-5443-1         | Good             | WHITE TWIN R-EVOLVE FLOOD |
|                      | 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: 18663.8 (1 lamp)  
Luminaire Lumens: 18663.9 lumens  
Efficiency: 100.0%  
Efficacy: 140.4 lumens/watt  
Spacing Criteria (0/90/45): 1.3 / 1.32 / 1.42  
Luminous Opening: Rectangular (W 0.99' x L: 1.92' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 132.95  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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: RKS180330002-10  
CATALOG NUMBER: LHB-18-UNV-L850-CD-U w/out lens

### Luminous Intensity Polar Plot



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



TEST NUMBER: RKS180330002-10  
 CATALOG NUMBER: LHB-18-UNV-L850-CD-U w/out lens

**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   | 109 | 105 | 101 | 97  | 107 | 103 | 99  | 96  | 98  | 95  | 93  | 95  | 92  | 90  | 91  | 89  | 87  | 85  |
| 2   | 100 | 92  | 85  | 80  | 97  | 90  | 84  | 79  | 86  | 81  | 77  | 83  | 79  | 75  | 80  | 77  | 73  | 71  |
| 3   | 91  | 81  | 73  | 66  | 88  | 79  | 72  | 66  | 76  | 70  | 65  | 73  | 68  | 63  | 71  | 66  | 62  | 60  |
| 4   | 83  | 71  | 63  | 56  | 81  | 70  | 62  | 56  | 68  | 61  | 55  | 65  | 59  | 54  | 63  | 58  | 53  | 51  |
| 5   | 76  | 64  | 55  | 48  | 74  | 63  | 54  | 48  | 60  | 53  | 47  | 59  | 52  | 47  | 57  | 51  | 46  | 44  |
| 6   | 71  | 57  | 48  | 42  | 69  | 56  | 48  | 42  | 55  | 47  | 41  | 53  | 46  | 41  | 51  | 45  | 41  | 39  |
| 7   | 65  | 52  | 43  | 37  | 64  | 51  | 43  | 37  | 50  | 42  | 37  | 48  | 41  | 36  | 47  | 41  | 36  | 34  |
| 8   | 61  | 47  | 39  | 33  | 59  | 47  | 38  | 33  | 45  | 38  | 33  | 44  | 37  | 32  | 43  | 37  | 32  | 30  |
| 9   | 57  | 43  | 35  | 30  | 55  | 43  | 35  | 29  | 42  | 34  | 29  | 40  | 34  | 29  | 39  | 33  | 29  | 27  |
| 10  | 53  | 40  | 32  | 27  | 52  | 39  | 32  | 27  | 38  | 31  | 27  | 37  | 31  | 26  | 37  | 31  | 26  | 25  |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°    | 90°   | 180°  | 270°  |
|-----|-------|-------|-------|-------|
| 0°  | 36546 | 36546 | 36546 | 36546 |
| 5°  | 36620 | 36716 | 36610 | 36620 |
| 10° | 36799 | 37028 | 36756 | 36689 |
| 15° | 36933 | 37247 | 36793 | 36850 |
| 20° | 37027 | 37461 | 36928 | 36992 |
| 25° | 37171 | 37885 | 37060 | 37175 |
| 30° | 36903 | 38230 | 36773 | 37309 |
| 35° | 36964 | 38219 | 36756 | 36873 |
| 40° | 36587 | 37958 | 36425 | 36598 |
| 45° | 36438 | 37747 | 36151 | 36368 |
| 50° | 35832 | 37586 | 35466 | 36285 |
| 55° | 35029 | 37301 | 34539 | 35600 |
| 60° | 34019 | 36896 | 33280 | 31213 |
| 65° | 31985 | 29723 | 31307 | 26660 |
| 70° | 29341 | 21615 | 28227 | 19426 |
| 75° | 25147 | 19729 | 24063 | 16836 |
| 80° | 18930 | 9790  | 17484 | 3140  |
| 85° | 8936  | 1411  | 6699  | 0     |



TEST NUMBER: RKS180330002-10

CATALOG NUMBER: LHB-18-UNV-L850-CD-U w/out lens

**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

| Zone      | Lumens  | % Fixture | % Lamp |      | 0°   | 90°  | 180° | 270° | 360° | Flux |
|-----------|---------|-----------|--------|------|------|------|------|------|------|------|
| 0°-10°    | 612.9   | 3.3       | 3.3    | 0°   | 6447 | 6447 | 6447 | 6447 | 6447 |      |
| 10°-20°   | 1777.3  | 9.5       | 9.5    | 5°   | 6436 | 6452 | 6434 | 6436 | 6436 | 613  |
| 20°-30°   | 2747.5  | 14.7      | 14.7   | 15°  | 6293 | 6347 | 6270 | 6279 | 6293 | 1777 |
| 30°-40°   | 3377.4  | 18.1      | 18.1   | 25°  | 5943 | 6057 | 5925 | 5944 | 5943 | 2733 |
| 40°-50°   | 3547.8  | 19.0      | 19.0   | 35°  | 5342 | 5523 | 5312 | 5328 | 5342 | 3333 |
| 50°-60°   | 3233.3  | 17.3      | 17.3   | 45°  | 4545 | 4709 | 4510 | 4537 | 4545 | 3497 |
| 60°-70°   | 2262.6  | 12.1      | 12.1   | 55°  | 3544 | 3774 | 3495 | 3602 | 3544 | 3167 |
| 70°-80°   | 981.6   | 5.3       | 5.3    | 65°  | 2385 | 2216 | 2334 | 1988 | 2385 | 2361 |
| 80°-90°   | 123.4   | 0.7       | 0.7    | 75°  | 1148 | 901  | 1099 | 769  | 1148 | 1225 |
| 90°-100°  | 0.0     | 0.0       | 0.0    | 85°  | 137  | 22   | 103  | 0    | 137  | 223  |
| 100°-110° | 0.0     | 0.0       | 0.0    | 90°  | 0    | 0    | 0    | 0    | 0    | 19   |
| 110°-120° | 0.0     | 0.0       | 0.0    | 95°  | 0    | 0    | 0    | 0    | 0    | 0    |
| 120°-130° | 0.0     | 0.0       | 0.0    | 105° | 0    | 0    | 0    | 0    | 0    | 0    |
| 130°-140° | 0.0     | 0.0       | 0.0    | 115° | 0    | 0    | 0    | 0    | 0    | 0    |
| 140°-150° | 0.0     | 0.0       | 0.0    | 125° | 0    | 0    | 0    | 0    | 0    | 0    |
| 150°-160° | 0.0     | 0.0       | 0.0    | 135° | 0    | 0    | 0    | 0    | 0    | 0    |
| 160°-170° | 0.0     | 0.0       | 0.0    | 145° | 0    | 0    | 0    | 0    | 0    | 0    |
| 170°-180° | 0.0     | 0.0       | 0.0    | 155° | 0    | 0    | 0    | 0    | 0    | 0    |
| 0°-30°    | 5137.7  | 27.5      | 27.5   | 165° | 0    | 0    | 0    | 0    | 0    | 0    |
| 0°-40°    | 8515.1  | 45.6      | 45.6   | 175° | 0    | 0    | 0    | 0    | 0    | 0    |
| 0°-60°    | 15296.3 | 82.0      | 82.0   | 180° | 0    | 0    | 0    | 0    | 0    | 0    |
| 0°-90°    | 18663.9 | 100.0     | 100.0  |      |      |      |      |      |      |      |
| 90°-120°  | 0.0     | 0.0       | 0.0    |      |      |      |      |      |      |      |
| 90°-150°  | 0.0     | 0.0       | 0.0    |      |      |      |      |      |      |      |
| 90°-180°  | 0.0     | 0.0       | 0.0    |      |      |      |      |      |      |      |
| 0°-180°   | 18663.9 | 100.0     | 100.0  |      |      |      |      |      |      |      |



TEST NUMBER: RKS180330002-10  
 CATALOG NUMBER: LHB-18-UNV-L850-CD-U w/out lens

**CANDELA DISTRIBUTION (FULL):**

|      | 0°     | 22.5°  | 45°    | 67.5°  | 90°    | 112.5° | 135°   | 157.5° | 180°   | 202.5° | 225°   |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°   | 6447.1 | 6447.1 | 6447.1 | 6447.1 | 6447.1 | 6447.1 | 6447.1 | 6447.1 | 6447.1 | 6447.1 | 6447.1 |
| 5°   | 6435.6 | 6442.4 | 6440.6 | 6439.7 | 6452.4 | 6444.8 | 6443.2 | 6438.9 | 6433.8 | 6437.4 | 6432.7 |
| 10°  | 6393.1 | 6391.5 | 6394.7 | 6403.2 | 6432.9 | 6404.1 | 6399.7 | 6396.2 | 6385.7 | 6381.8 | 6374.1 |
| 15°  | 6293.4 | 6294.7 | 6300.6 | 6308.2 | 6346.9 | 6314.7 | 6303.2 | 6301.9 | 6269.5 | 6275.6 | 6269.0 |
| 20°  | 6138.0 | 6153.9 | 6163.8 | 6187.2 | 6210.0 | 6190.8 | 6173.1 | 6159.2 | 6121.6 | 6119.6 | 6128.2 |
| 25°  | 5943.0 | 5954.1 | 5985.7 | 6005.5 | 6057.1 | 6017.5 | 5988.6 | 5968.4 | 5925.2 | 5926.7 | 5925.6 |
| 30°  | 5637.9 | 5692.2 | 5756.0 | 5803.1 | 5840.7 | 5813.6 | 5762.8 | 5701.6 | 5618.1 | 5654.1 | 5702.1 |
| 35°  | 5341.6 | 5362.1 | 5490.5 | 5512.1 | 5522.9 | 5527.4 | 5504.5 | 5369.6 | 5311.6 | 5323.7 | 5435.4 |
| 40°  | 4944.4 | 5025.2 | 5098.0 | 5106.0 | 5129.6 | 5124.8 | 5125.4 | 5040.6 | 4922.4 | 4962.4 | 5035.4 |
| 45°  | 4545.4 | 4597.8 | 4663.9 | 4715.4 | 4708.6 | 4727.8 | 4695.7 | 4617.2 | 4509.6 | 4540.1 | 4551.4 |
| 50°  | 4063.2 | 4147.4 | 4165.4 | 4279.3 | 4262.1 | 4281.2 | 4209.2 | 4165.7 | 4021.7 | 4096.7 | 4062.9 |
| 55°  | 3544.4 | 3675.6 | 3671.2 | 3794.4 | 3774.3 | 3789.1 | 3690.3 | 3681.4 | 3494.8 | 3564.8 | 3537.7 |
| 60°  | 3000.7 | 3097.5 | 3114.8 | 3232.1 | 3254.4 | 3243.5 | 3135.8 | 3115.1 | 2935.5 | 2934.1 | 2978.2 |
| 65°  | 2384.6 | 2449.1 | 2530.2 | 2184.6 | 2216.0 | 2198.2 | 2550.7 | 2465.2 | 2334.1 | 2326.7 | 2379.2 |
| 70°  | 1770.3 | 1818.5 | 1594.2 | 1287.0 | 1304.2 | 1286.8 | 1773.4 | 1841.4 | 1703.1 | 1709.7 | 1459.2 |
| 75°  | 1148.2 | 1196.2 | 819.8  | 871.0  | 900.8  | 867.2  | 822.4  | 1214.7 | 1098.7 | 1095.3 | 728.3  |
| 80°  | 579.9  | 518.9  | 431.6  | 355.0  | 299.9  | 378.4  | 437.2  | 525.1  | 535.6  | 348.6  | 349.1  |
| 85°  | 137.4  | 112.7  | 25.0   | 27.4   | 21.7   | 24.8   | 31.8   | 120.3  | 103.0  | 47.4   | 10.0   |
| 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    |



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 CATALOG NUMBER: LHB-18-UNV-L850-CD-U w/out lens

**CANDELA DISTRIBUTION (continued):**

|      | 247.5° | 270°   | 292.5° | 315°   | 337.5° | 360°   |
|------|--------|--------|--------|--------|--------|--------|
| 0°   | 6447.1 | 6447.1 | 6447.1 | 6447.1 | 6447.1 | 6447.1 |
| 5°   | 6433.4 | 6435.6 | 6433.1 | 6433.7 | 6432.6 | 6435.6 |
| 10°  | 6377.7 | 6374.1 | 6372.5 | 6376.3 | 6375.7 | 6393.1 |
| 15°  | 6280.0 | 6279.3 | 6272.1 | 6267.7 | 6267.5 | 6293.4 |
| 20°  | 6135.2 | 6132.2 | 6128.7 | 6120.7 | 6118.8 | 6138.0 |
| 25°  | 5952.0 | 5943.7 | 5942.8 | 5924.2 | 5916.4 | 5943.0 |
| 30°  | 5704.9 | 5700.0 | 5709.5 | 5687.8 | 5626.8 | 5637.9 |
| 35°  | 5365.9 | 5328.5 | 5368.0 | 5413.1 | 5312.0 | 5341.6 |
| 40°  | 4983.2 | 4945.8 | 4975.9 | 5006.9 | 4959.7 | 4944.4 |
| 45°  | 4564.8 | 4536.6 | 4570.6 | 4538.7 | 4528.9 | 4545.4 |
| 50°  | 4114.4 | 4114.5 | 4116.4 | 4033.5 | 4066.9 | 4063.2 |
| 55°  | 3613.1 | 3602.2 | 3595.6 | 3517.4 | 3549.2 | 3544.4 |
| 60°  | 3067.5 | 2753.2 | 3034.4 | 2950.3 | 2946.7 | 3000.7 |
| 65°  | 2034.1 | 1987.6 | 1998.1 | 2356.9 | 2323.6 | 2384.6 |
| 70°  | 1160.5 | 1172.1 | 1145.6 | 1431.4 | 1693.1 | 1770.3 |
| 75°  | 753.4  | 768.7  | 745.2  | 697.8  | 1083.4 | 1148.2 |
| 80°  | 97.6   | 96.2   | 95.5   | 343.8  | 429.9  | 579.9  |
| 85°  | 0.0    | 0.0    | 0.0    | 10.7   | 48.1   | 137.4  |
| 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)