

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: FAIL-SAFE

Report Number: P645789

Luminaire Tested: **FLDSQ4C15D010 FEU4C159030 F4LC-SQ-LI-D2W**

Issue Date: 12/13/2022

**Test Information**

Test Method: LM-79-08  
Report Number: P645789  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P209151)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/13/2022  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FLDSQ4C15D010 FEU4C159030 F4LC-SQ-LI-D2W  
Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH, DIM TO WARM  
Light Source: -  
Ballast/Driver: -

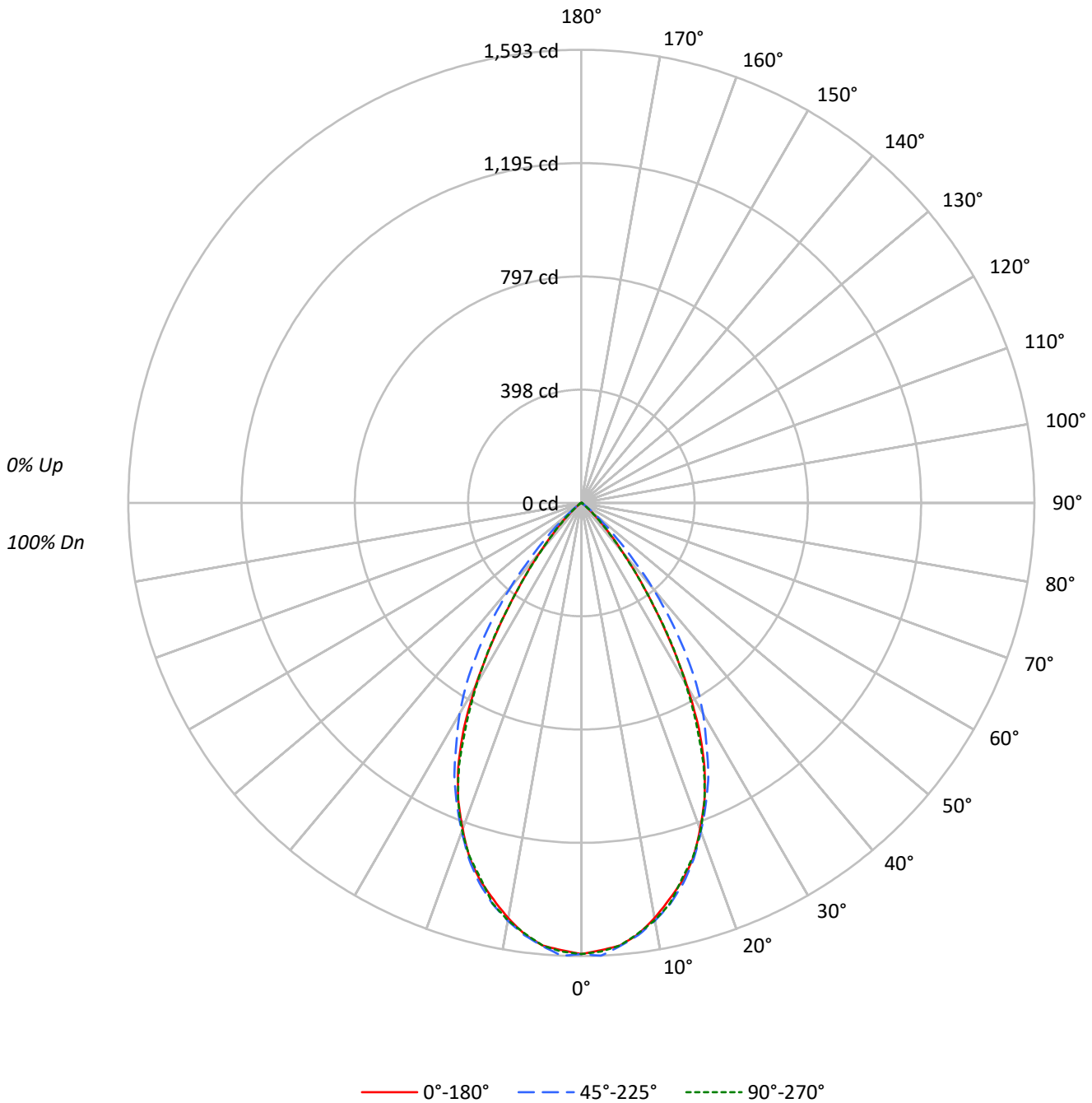
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1463.9 lumens  
Efficiency: N/A  
Efficacy: 92.7 lumens/watt  
Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 15.8  
Input Voltage (V):  
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: P645789  
CATALOG NUMBER: FLDSQ4C15D010 FEU4C159030 F4LC-SQ-LI-D2W

### Luminous Intensity Polar Plot





TEST NUMBER: P645789  
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159030 F4LC-SQ-LI-D2W

**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   | 113 | 111 | 108 | 106 | 111 | 108 | 106 | 104 | 104 | 103 | 101 | 101 | 99  | 98  | 97  | 96  | 95  | 93  |
| 2   | 108 | 103 | 99  | 95  | 105 | 101 | 97  | 94  | 98  | 95  | 92  | 95  | 92  | 90  | 92  | 90  | 88  | 87  |
| 3   | 102 | 96  | 91  | 87  | 100 | 94  | 90  | 86  | 92  | 88  | 84  | 89  | 86  | 83  | 87  | 84  | 82  | 80  |
| 4   | 97  | 89  | 84  | 79  | 95  | 88  | 83  | 79  | 86  | 81  | 78  | 84  | 80  | 77  | 82  | 79  | 76  | 75  |
| 5   | 92  | 83  | 77  | 73  | 90  | 82  | 77  | 73  | 81  | 76  | 72  | 79  | 75  | 71  | 77  | 74  | 71  | 69  |
| 6   | 87  | 78  | 72  | 68  | 86  | 77  | 71  | 67  | 76  | 71  | 67  | 74  | 70  | 66  | 73  | 69  | 66  | 64  |
| 7   | 83  | 73  | 67  | 63  | 81  | 73  | 67  | 63  | 71  | 66  | 62  | 70  | 65  | 62  | 69  | 65  | 62  | 60  |
| 8   | 79  | 69  | 63  | 59  | 77  | 68  | 62  | 58  | 67  | 62  | 58  | 66  | 61  | 58  | 65  | 61  | 58  | 56  |
| 9   | 75  | 65  | 59  | 55  | 74  | 64  | 59  | 55  | 63  | 58  | 55  | 63  | 58  | 54  | 62  | 57  | 54  | 53  |
| 10  | 71  | 61  | 55  | 51  | 70  | 61  | 55  | 51  | 60  | 55  | 51  | 59  | 54  | 51  | 58  | 54  | 51  | 50  |

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

|     | 0°     | 45°    | 90°    |
|-----|--------|--------|--------|
| 0°  | 153002 | 153002 | 153002 |
| 5°  | 151253 | 151446 | 151253 |
| 10° | 145202 | 146094 | 145888 |
| 15° | 137272 | 138271 | 136563 |
| 20° | 125271 | 126206 | 125898 |
| 25° | 109083 | 112511 | 108327 |
| 30° | 82949  | 95405  | 81712  |
| 35° | 52217  | 74173  | 52688  |
| 40° | 28177  | 48985  | 27660  |
| 45° | 13332  | 24194  | 13195  |
| 50° | 4999   | 9067   | 4999   |
| 55° | 2372   | 2877   | 2204   |
| 60° | 1563   | 1370   | 1563   |
| 65° | 913    | 913    | 913    |
| 70° | 564    | 846    | 564    |
| 75° | 373    | 373    | 373    |
| 80° | 556    | 556    | 556    |
| 85° | 0      | 0      | 0      |



TEST NUMBER: P645789  
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159030 F4LC-SQ-LI-D2W

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 147.0  | 10.0      |
| 10°-20°   | 385.3  | 26.3      |
| 20°-30°   | 470.7  | 32.2      |
| 30°-40°   | 329.2  | 22.5      |
| 40°-50°   | 107.9  | 7.4       |
| 50°-60°   | 17.2   | 1.2       |
| 60°-70°   | 4.7    | 0.3       |
| 70°-80°   | 1.5    | 0.1       |
| 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°    | 1003.0 | 68.5      |
| 0°-40°    | 1332.3 | 91.0      |
| 0°-60°    | 1457.3 | 99.5      |
| 0°-90°    | 1463.9 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1463.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1586 | 1586  | 1586 | 1586  | 1586 |      |
| 5°  | 1562 | 1562  | 1564 | 1554  | 1562 | 146  |
| 15° | 1374 | 1380  | 1384 | 1375  | 1367 | 383  |
| 25° | 1025 | 1040  | 1057 | 1038  | 1018 | 460  |
| 35° | 443  | 523   | 630  | 515   | 447  | 283  |
| 45° | 98   | 120   | 177  | 119   | 97   | 82   |
| 55° | 14   | 15    | 17   | 15    | 13   | 14   |
| 65° | 4    | 5     | 4    | 5     | 4    | 4    |
| 75° | 1    | 1     | 1    | 1     | 1    | 1    |
| 85° | 0    | 0     | 0    | 0     | 0    | 0    |
| 90° | 0    | 0     | 0    | 0     | 0    | 0    |



TEST NUMBER: P645789  
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159030 F4LC-SQ-LI-D2W

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 10°    | 15°    | 20°    | 25°    | 30°    | 35°    | 40°    | 45°    | 50°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1585.7 | 1585.7 | 1585.7 | 1585.7 | 1585.7 | 1585.7 | 1585.7 | 1585.7 | 1585.7 | 1585.7 | 1585.7 |
| 2.5°  | 1573.7 | 1584.8 | 1581.7 | 1588.8 | 1588.8 | 1580.7 | 1582.7 | 1585.7 | 1589.8 | 1592.8 | 1568.6 |
| 5°    | 1561.6 | 1571.6 | 1562.6 | 1572.6 | 1566.6 | 1557.5 | 1572.6 | 1564.6 | 1569.6 | 1563.6 | 1567.6 |
| 7.5°  | 1529.3 | 1545.4 | 1527.3 | 1539.4 | 1535.4 | 1530.3 | 1536.4 | 1534.4 | 1537.4 | 1532.3 | 1521.3 |
| 10°   | 1482.0 | 1495.1 | 1483.0 | 1500.1 | 1492.0 | 1487.0 | 1492.0 | 1497.1 | 1496.1 | 1491.1 | 1497.1 |
| 12.5° | 1427.6 | 1442.7 | 1436.6 | 1446.7 | 1437.7 | 1437.7 | 1449.7 | 1446.7 | 1447.7 | 1443.7 | 1450.7 |
| 15°   | 1374.2 | 1385.3 | 1376.2 | 1389.3 | 1385.3 | 1374.2 | 1379.2 | 1379.2 | 1387.3 | 1384.2 | 1376.2 |
| 17.5° | 1307.7 | 1316.7 | 1306.7 | 1309.7 | 1305.7 | 1303.7 | 1324.8 | 1310.7 | 1318.8 | 1312.7 | 1313.7 |
| 20°   | 1220.0 | 1224.1 | 1221.0 | 1229.1 | 1224.1 | 1230.1 | 1228.1 | 1226.1 | 1226.1 | 1229.1 | 1222.1 |
| 22.5° | 1131.4 | 1131.4 | 1134.4 | 1136.4 | 1140.5 | 1134.4 | 1146.5 | 1136.4 | 1137.4 | 1144.5 | 1142.5 |
| 25°   | 1024.6 | 1021.6 | 1028.6 | 1038.7 | 1042.7 | 1037.7 | 1053.8 | 1045.7 | 1051.8 | 1056.8 | 1045.7 |
| 27.5° | 894.6  | 894.6  | 901.7  | 918.8  | 921.8  | 927.9  | 950.0  | 950.0  | 958.1  | 951.0  | 959.1  |
| 30°   | 744.5  | 755.6  | 764.6  | 786.8  | 793.9  | 807.0  | 830.1  | 841.2  | 859.4  | 856.3  | 852.3  |
| 32.5° | 590.4  | 605.5  | 606.5  | 629.7  | 648.8  | 671.0  | 702.2  | 728.4  | 741.5  | 750.5  | 740.5  |
| 35°   | 443.3  | 452.4  | 460.4  | 476.5  | 508.8  | 538.0  | 566.2  | 600.4  | 623.6  | 629.7  | 620.6  |
| 37.5° | 324.4  | 326.4  | 334.5  | 349.6  | 373.8  | 402.0  | 436.2  | 473.5  | 497.7  | 506.7  | 496.7  |
| 40°   | 223.7  | 225.7  | 229.7  | 242.8  | 263.0  | 283.1  | 310.3  | 348.6  | 370.7  | 388.9  | 375.8  |
| 42.5° | 150.1  | 152.1  | 156.1  | 166.2  | 177.3  | 196.4  | 217.6  | 241.8  | 263.0  | 271.0  | 263.9  |
| 45°   | 97.7   | 97.7   | 99.7   | 106.8  | 112.9  | 127.9  | 143.1  | 158.2  | 172.3  | 177.3  | 172.3  |
| 47.5° | 57.4   | 58.4   | 60.4   | 65.5   | 72.5   | 78.6   | 89.7   | 99.7   | 103.8  | 107.8  | 105.8  |
| 50°   | 33.3   | 33.3   | 36.3   | 39.3   | 44.3   | 48.3   | 52.4   | 56.4   | 58.4   | 60.4   | 58.4   |
| 52.5° | 18.1   | 19.2   | 20.1   | 21.2   | 23.2   | 27.2   | 30.2   | 30.2   | 31.2   | 32.2   | 31.2   |
| 55°   | 14.1   | 14.1   | 14.1   | 14.1   | 15.1   | 15.1   | 15.1   | 16.1   | 16.1   | 17.1   | 16.1   |
| 57.5° | 10.1   | 10.1   | 10.1   | 11.1   | 11.1   | 11.1   | 10.1   | 10.1   | 10.1   | 10.1   | 10.1   |
| 60°   | 8.1    | 8.1    | 8.1    | 8.1    | 8.1    | 8.1    | 8.1    | 7.1    | 7.1    | 7.1    | 7.1    |
| 62.5° | 6.0    | 6.0    | 6.0    | 6.0    | 6.0    | 6.0    | 6.0    | 6.0    | 6.0    | 6.0    | 6.0    |
| 65°   | 4.0    | 4.0    | 5.1    | 5.1    | 5.1    | 5.1    | 5.1    | 4.0    | 4.0    | 4.0    | 4.0    |
| 67.5° | 3.0    | 3.0    | 3.0    | 3.0    | 4.0    | 4.0    | 3.0    | 3.0    | 3.0    | 3.0    | 3.0    |
| 70°   | 2.0    | 2.0    | 2.0    | 3.0    | 3.0    | 3.0    | 3.0    | 3.0    | 3.0    | 3.0    | 3.0    |
| 72.5° | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    |
| 75°   | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    |
| 77.5° | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    |
| 80°   | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    |
| 82.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 1.0    | 0.0    | 0.0    | 0.0    |
| 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° | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    |
| 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: P645789  
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159030 F4LC-SQ-LI-D2W

**CANDELA DISTRIBUTION (continued):**

|       | 55°    | 60°    | 65°    | 70°    | 75°    | 80°    | 85°    | 90°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1585.7 | 1585.7 | 1585.7 | 1585.7 | 1585.7 | 1585.7 | 1585.7 | 1585.7 |
| 2.5°  | 1585.7 | 1568.6 | 1570.6 | 1579.7 | 1574.6 | 1579.7 | 1578.7 | 1578.7 |
| 5°    | 1568.6 | 1563.6 | 1555.5 | 1552.5 | 1558.5 | 1571.6 | 1569.6 | 1561.6 |
| 7.5°  | 1536.4 | 1523.3 | 1532.3 | 1536.4 | 1531.3 | 1539.4 | 1543.4 | 1526.3 |
| 10°   | 1498.1 | 1493.1 | 1491.1 | 1493.1 | 1491.1 | 1499.1 | 1489.0 | 1489.0 |
| 12.5° | 1443.7 | 1435.6 | 1435.6 | 1447.7 | 1440.7 | 1434.6 | 1442.7 | 1441.7 |
| 15°   | 1389.3 | 1373.1 | 1373.1 | 1377.2 | 1380.2 | 1376.2 | 1377.2 | 1367.1 |
| 17.5° | 1308.7 | 1303.7 | 1296.6 | 1307.7 | 1310.7 | 1306.7 | 1309.7 | 1304.7 |
| 20°   | 1233.1 | 1233.1 | 1220.0 | 1225.1 | 1229.1 | 1232.1 | 1234.1 | 1226.1 |
| 22.5° | 1136.4 | 1138.4 | 1129.4 | 1139.4 | 1142.5 | 1132.4 | 1134.4 | 1132.4 |
| 25°   | 1047.7 | 1046.8 | 1039.7 | 1035.7 | 1037.7 | 1033.6 | 1032.7 | 1017.5 |
| 27.5° | 950.0  | 939.9  | 924.9  | 928.9  | 911.7  | 897.6  | 897.6  | 874.5  |
| 30°   | 844.2  | 827.1  | 807.0  | 786.8  | 771.7  | 755.6  | 746.5  | 733.4  |
| 32.5° | 720.3  | 697.2  | 672.0  | 644.8  | 627.7  | 603.5  | 590.4  | 597.4  |
| 35°   | 597.4  | 563.2  | 528.9  | 501.7  | 475.5  | 461.4  | 445.3  | 447.3  |
| 37.5° | 478.5  | 430.2  | 400.0  | 370.7  | 348.6  | 330.5  | 323.4  | 321.4  |
| 40°   | 349.6  | 311.3  | 281.1  | 259.9  | 244.8  | 230.7  | 222.7  | 219.6  |
| 42.5° | 241.8  | 214.6  | 190.4  | 173.3  | 163.2  | 154.1  | 150.1  | 149.1  |
| 45°   | 157.2  | 141.1  | 124.9  | 112.9  | 104.8  | 98.8   | 97.7   | 96.7   |
| 47.5° | 98.8   | 90.7   | 80.6   | 71.5   | 64.5   | 60.4   | 57.4   | 57.4   |
| 50°   | 56.4   | 53.4   | 48.3   | 43.3   | 39.3   | 37.3   | 34.2   | 33.3   |
| 52.5° | 30.2   | 30.2   | 28.2   | 24.2   | 21.2   | 19.2   | 19.2   | 18.1   |
| 55°   | 16.1   | 16.1   | 15.1   | 15.1   | 14.1   | 14.1   | 14.1   | 13.1   |
| 57.5° | 10.1   | 10.1   | 11.1   | 11.1   | 10.1   | 10.1   | 10.1   | 10.1   |
| 60°   | 7.1    | 8.1    | 8.1    | 8.1    | 8.1    | 8.1    | 8.1    | 8.1    |
| 62.5° | 6.0    | 6.0    | 6.0    | 6.0    | 6.0    | 6.0    | 6.0    | 6.0    |
| 65°   | 4.0    | 5.1    | 5.1    | 5.1    | 5.1    | 4.0    | 4.0    | 4.0    |
| 67.5° | 3.0    | 3.0    | 3.0    | 3.0    | 3.0    | 3.0    | 3.0    | 3.0    |
| 70°   | 3.0    | 3.0    | 3.0    | 3.0    | 3.0    | 2.0    | 2.0    | 2.0    |
| 72.5° | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    |
| 75°   | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    |
| 77.5° | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    |
| 80°   | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    |
| 82.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)