

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: HALO

Report Number: P130225

Luminaire Tested: **HL612ICAT - HLM6940 - HL6NFL - 71PS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130225
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33476)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6940 - HL6NFL - 71PS
Description: HALO ALLSLOPE 6" 21W, Drop Opal Glass Lens, White Polymer Trim Ring
"Dead Front", Wet Location - Showerlight using 25 Degree Optic at a 6-12
Pitch
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 876.4 lumens
Efficiency: N/A
Efficacy: 45.9 lumens/watt
Spacing Criteria (0/90/45): 1.33 / 1.29 / 1.46
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

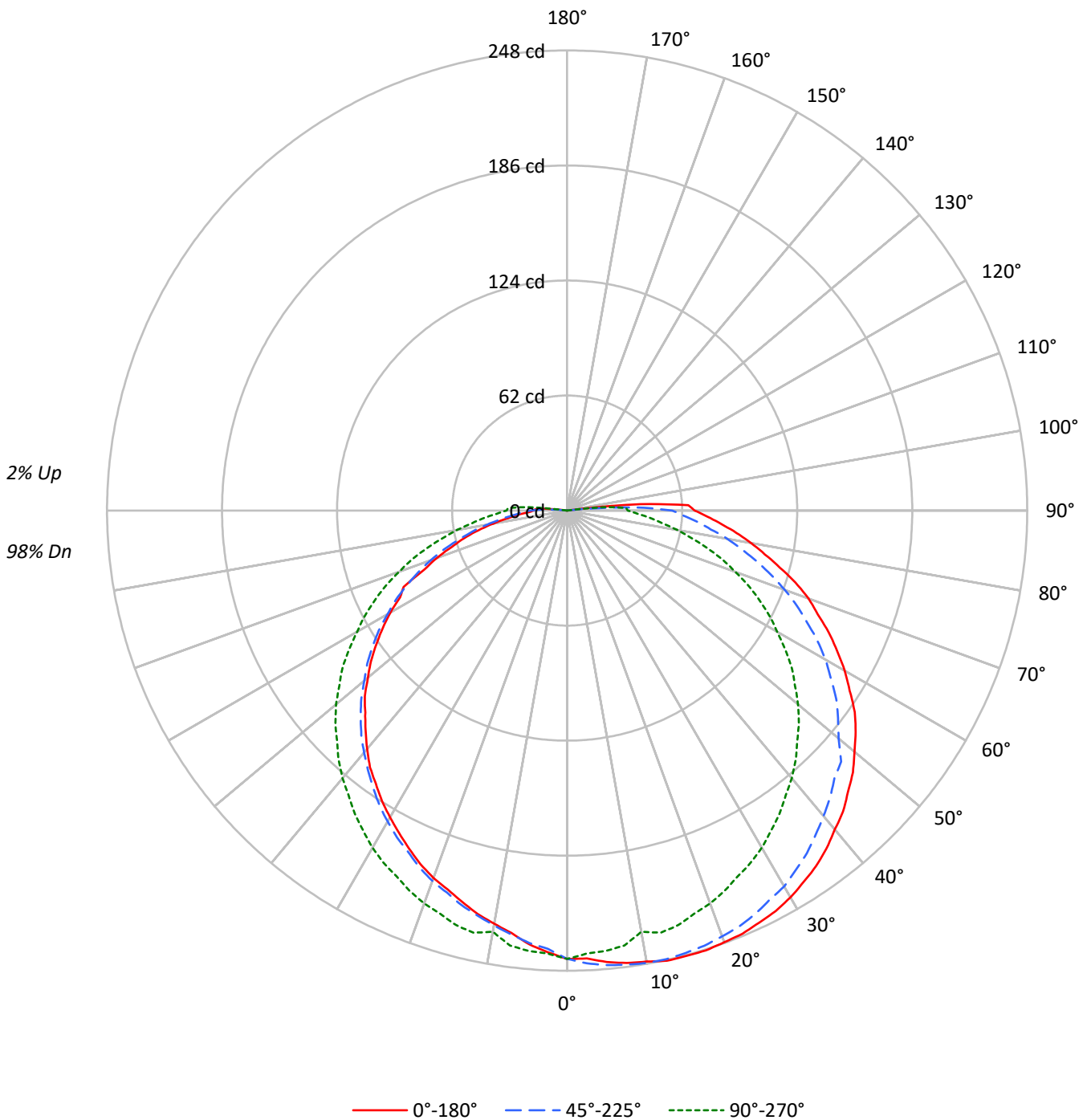
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P130225

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6NFL - 71PS

Luminous Intensity Polar Plot





TEST NUMBER: P130225

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6NFL - 71PS

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 | 110 | 110 | 110 | 105 | 105 | 105 | 100 | 100 | 100 | 98 |
| 1 | 106 | 100 | 95 | 90 | 103 | 97 | 93 | 88 | 93 | 89 | 85 | 88 | 85 | 82 | 84 | 82 | 79 | 77 |
| 2 | 95 | 86 | 78 | 71 | 92 | 83 | 76 | 70 | 79 | 73 | 68 | 76 | 71 | 66 | 72 | 68 | 64 | 62 |
| 3 | 86 | 74 | 65 | 58 | 83 | 73 | 64 | 57 | 69 | 62 | 56 | 66 | 60 | 55 | 63 | 58 | 53 | 51 |
| 4 | 78 | 65 | 56 | 48 | 76 | 64 | 55 | 48 | 61 | 53 | 47 | 58 | 52 | 46 | 56 | 50 | 45 | 43 |
| 5 | 72 | 58 | 48 | 41 | 70 | 57 | 48 | 41 | 54 | 46 | 40 | 52 | 45 | 40 | 50 | 44 | 39 | 37 |
| 6 | 66 | 52 | 42 | 36 | 64 | 51 | 42 | 35 | 49 | 41 | 35 | 47 | 40 | 34 | 45 | 39 | 34 | 32 |
| 7 | 61 | 47 | 38 | 31 | 59 | 46 | 37 | 31 | 44 | 36 | 31 | 43 | 36 | 30 | 41 | 35 | 30 | 28 |
| 8 | 57 | 43 | 34 | 28 | 55 | 42 | 33 | 28 | 40 | 33 | 27 | 39 | 32 | 27 | 38 | 31 | 27 | 25 |
| 9 | 53 | 39 | 31 | 25 | 52 | 38 | 30 | 25 | 37 | 30 | 24 | 36 | 29 | 24 | 35 | 28 | 24 | 22 |
| 10 | 50 | 36 | 28 | 22 | 48 | 35 | 28 | 22 | 34 | 27 | 22 | 33 | 27 | 22 | 32 | 26 | 22 | 20 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 90° | 180° |
|-----|-------|-------|-------|
| 0° | 14421 | 14421 | 14421 |
| 5° | 14300 | 13948 | 13743 |
| 10° | 14289 | 13340 | 13091 |
| 15° | 14336 | 13343 | 12599 |
| 20° | 14341 | 13049 | 12204 |
| 25° | 14357 | 12746 | 11790 |
| 30° | 14384 | 12537 | 11408 |
| 35° | 14370 | 12257 | 11040 |
| 40° | 14298 | 11997 | 10685 |
| 45° | 14279 | 11698 | 10264 |
| 50° | 14254 | 11461 | 9881 |
| 55° | 14273 | 11157 | 9468 |
| 60° | 14127 | 10685 | 9001 |
| 65° | 14000 | 10293 | 8745 |
| 70° | 13961 | 9715 | 7546 |
| 75° | 13745 | 9055 | 6670 |
| 80° | 13794 | 8254 | 5539 |
| 85° | 14148 | 7583 | 4529 |



TEST NUMBER: P130225

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6NFL - 71PS

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 22.9 | 2.6 |
| 10°-20° | 66.1 | 7.5 |
| 20°-30° | 102.5 | 11.7 |
| 30°-40° | 128.0 | 14.6 |
| 40°-50° | 139.8 | 16.0 |
| 50°-60° | 136.7 | 15.6 |
| 60°-70° | 118.5 | 13.5 |
| 70°-80° | 88.2 | 10.1 |
| 80°-90° | 55.0 | 6.3 |
| 90°-100° | 18.6 | 2.1 |
| 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° | 191.5 | 21.8 |
| 0°-40° | 319.5 | 36.5 |
| 0°-60° | 596.0 | 68.0 |
| 0°-90° | 857.8 | 97.9 |
| 90°-120° | 18.6 | 2.1 |
| 90°-150° | 18.6 | 2.1 |
| 90°-180° | 19.0 | 2.2 |
| 0°-180° | 876.4 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 45° | 90° | 135° | 180° | Flux |
|------|-----|-----|-----|------|------|------|
| 0° | 242 | 242 | 242 | 242 | 242 | |
| 5° | 244 | 246 | 238 | 234 | 235 | 23 |
| 15° | 248 | 247 | 231 | 220 | 218 | 70 |
| 25° | 245 | 240 | 218 | 203 | 201 | 113 |
| 35° | 234 | 225 | 200 | 182 | 180 | 146 |
| 45° | 214 | 204 | 175 | 157 | 154 | 166 |
| 55° | 189 | 177 | 148 | 128 | 126 | 169 |
| 65° | 156 | 143 | 114 | 95 | 97 | 154 |
| 75° | 119 | 106 | 78 | 60 | 58 | 126 |
| 85° | 83 | 70 | 45 | 29 | 27 | 72 |
| 90° | 69 | 57 | 33 | 20 | 18 | 38 |
| 95° | 40 | 10 | 22 | 4 | 11 | 20 |
| 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: P130225

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6NFL - 71PS

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° |
|--------|-------|-------|-------|-------|-------|--------|-------|--------|-------|
| 0° | 241.6 | 241.6 | 241.6 | 241.6 | 241.6 | 241.6 | 241.6 | 241.6 | 241.6 |
| 2.5° | 241.6 | 246.8 | 244.2 | 240.7 | 239.0 | 243.3 | 236.4 | 239.9 | 238.2 |
| 5° | 244.2 | 248.5 | 245.9 | 246.8 | 238.2 | 241.6 | 233.9 | 237.3 | 234.7 |
| 7.5° | 245.9 | 250.2 | 246.8 | 240.7 | 236.4 | 238.2 | 230.4 | 233.0 | 229.6 |
| 10° | 246.8 | 251.9 | 247.6 | 240.7 | 230.4 | 235.6 | 227.0 | 228.7 | 226.1 |
| 12.5° | 248.5 | 252.8 | 247.6 | 234.7 | 233.0 | 233.0 | 223.5 | 225.3 | 222.7 |
| 15° | 248.5 | 252.8 | 246.8 | 238.2 | 231.3 | 229.6 | 220.1 | 221.8 | 218.4 |
| 17.5° | 248.5 | 247.6 | 245.9 | 236.4 | 227.8 | 226.1 | 215.8 | 217.5 | 214.1 |
| 20° | 247.6 | 251.1 | 244.2 | 233.9 | 225.3 | 221.8 | 212.4 | 213.2 | 210.7 |
| 22.5° | 246.8 | 250.2 | 242.5 | 231.3 | 221.8 | 217.5 | 208.1 | 208.1 | 206.4 |
| 25° | 245.0 | 248.5 | 239.9 | 227.8 | 217.5 | 213.2 | 202.9 | 203.8 | 201.2 |
| 27.5° | 243.3 | 245.9 | 236.4 | 224.4 | 214.1 | 208.9 | 198.6 | 198.6 | 196.0 |
| 30° | 240.7 | 243.3 | 233.9 | 220.1 | 209.8 | 203.8 | 193.5 | 193.5 | 190.9 |
| 32.5° | 237.3 | 239.0 | 229.6 | 215.8 | 204.6 | 198.6 | 188.3 | 188.3 | 185.7 |
| 35° | 233.9 | 235.6 | 225.3 | 211.5 | 199.5 | 192.6 | 182.3 | 182.3 | 179.7 |
| 37.5° | 229.6 | 231.3 | 220.1 | 206.4 | 193.5 | 186.6 | 176.3 | 176.3 | 174.5 |
| 40° | 224.4 | 226.1 | 214.9 | 200.3 | 188.3 | 180.6 | 170.2 | 169.4 | 167.7 |
| 42.5° | 220.1 | 221.0 | 209.8 | 195.2 | 182.3 | 173.7 | 164.2 | 162.5 | 160.8 |
| 45° | 214.1 | 211.5 | 203.8 | 189.2 | 175.4 | 167.7 | 157.3 | 156.5 | 153.9 |
| 47.5° | 208.9 | 209.8 | 200.3 | 182.3 | 169.4 | 159.9 | 150.5 | 149.6 | 147.9 |
| 50° | 202.1 | 202.9 | 190.9 | 176.3 | 162.5 | 153.0 | 142.7 | 142.7 | 140.1 |
| 52.5° | 196.0 | 195.2 | 184.0 | 167.7 | 154.8 | 145.3 | 135.8 | 135.0 | 133.3 |
| 55° | 189.2 | 189.2 | 177.1 | 160.8 | 147.9 | 137.6 | 128.1 | 127.2 | 125.5 |
| 57.5° | 180.6 | 180.6 | 168.5 | 153.0 | 139.3 | 129.8 | 120.4 | 119.5 | 117.8 |
| 60° | 172.8 | 172.0 | 160.8 | 145.3 | 130.7 | 121.2 | 111.8 | 110.9 | 110.1 |
| 62.5° | 164.2 | 163.4 | 152.2 | 136.7 | 123.0 | 112.6 | 104.0 | 102.3 | 101.5 |
| 65° | 155.6 | 154.8 | 142.7 | 128.1 | 114.4 | 104.0 | 95.4 | 93.7 | 97.2 |
| 67.5° | 146.2 | 145.3 | 134.1 | 119.5 | 105.8 | 95.4 | 86.8 | 85.1 | 83.4 |
| 70° | 138.4 | 136.7 | 124.7 | 110.1 | 96.3 | 86.0 | 78.2 | 76.5 | 74.8 |
| 72.5° | 129.0 | 127.2 | 115.2 | 100.6 | 87.7 | 77.4 | 69.6 | 67.1 | 65.3 |
| 75° | 118.7 | 116.9 | 105.8 | 91.1 | 78.2 | 67.9 | 60.2 | 58.5 | 57.6 |
| 77.5° | 109.2 | 107.5 | 96.3 | 82.5 | 68.8 | 58.5 | 52.4 | 49.9 | 49.0 |
| 80° | 100.6 | 97.2 | 87.7 | 73.1 | 60.2 | 49.9 | 43.8 | 41.3 | 40.4 |
| 82.5° | 92.0 | 88.6 | 78.2 | 64.5 | 51.6 | 41.3 | 36.1 | 33.5 | 32.7 |
| 85° | 83.4 | 80.0 | 70.5 | 56.7 | 44.7 | 35.3 | 29.2 | 26.7 | 26.7 |
| 87.5° | 75.7 | 72.2 | 62.8 | 49.9 | 37.8 | 29.2 | 24.1 | 21.5 | 20.6 |
| 90° | 68.8 | 66.2 | 56.7 | 44.7 | 32.7 | 24.9 | 19.8 | 18.1 | 18.1 |
| 92.5° | 65.3 | 57.6 | 37.8 | 36.1 | 31.8 | 22.4 | 13.8 | 16.3 | 17.2 |
| 95° | 39.6 | 32.7 | 10.3 | 18.1 | 21.5 | 12.9 | 4.3 | 8.6 | 11.2 |
| 97.5° | 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 |
| 102.5° | 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 |
| 107.5° | 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 |



TEST NUMBER: P130225

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6NFL - 71PS

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° |
|--------|-----|-------|-----|-------|-----|--------|------|--------|------|
| 112.5° | 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 |
| 117.5° | 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 |
| 122.5° | 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 |
| 127.5° | 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 |
| 132.5° | 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 |
| 137.5° | 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 |
| 142.5° | 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 |
| 147.5° | 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 |
| 152.5° | 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 |
| 157.5° | 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 |
| 162.5° | 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 |
| 167.5° | 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 |
| 172.5° | 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 |
| 177.5° | 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 |

(END OF REPORT)