

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: HALO

Report Number: P565398

Luminaire Tested: **HLBQL4069FS1E-3500K-UNIT**

Issue Date: 8/31/2021

Test Information

Test Method: LM-79-08
Report Number: P565398
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (A2109887E005)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 8/31/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HLBQL4069FS1E-3500K-UNIT
Description: 4in Surface Mount Downlight Fixture with Color Selectable Switch
Light Source: (48) 3500K CCT, 94 CRI LEDS
Ballast/Driver: -

Summary

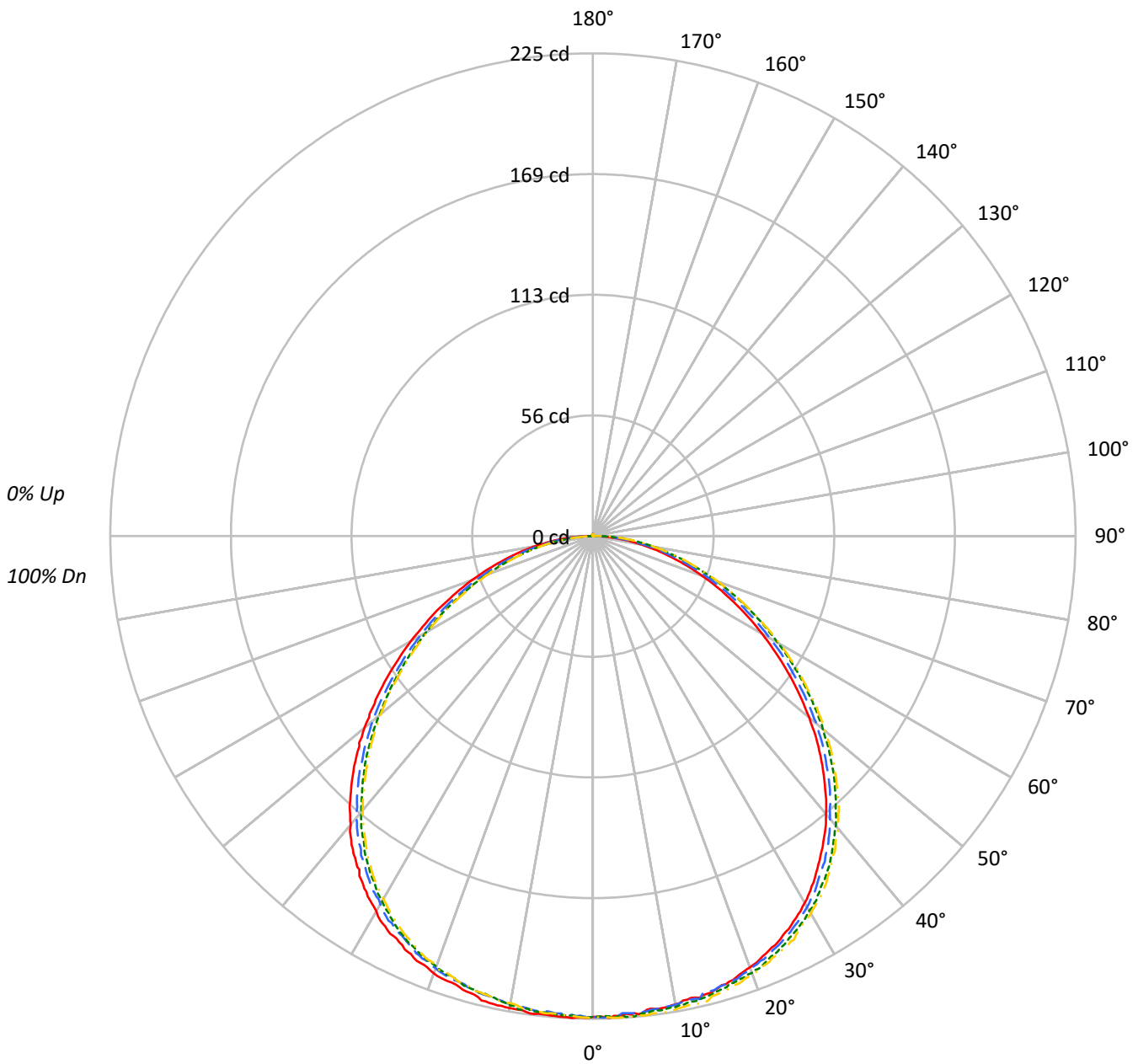
Lumens per Lamp: N/A
Luminaire Lumens: 650.1 lumens
Efficiency: N/A
Efficacy: 81.3 lumens/watt
Spacing Criteria (0/90/45): 1.31 / 1.31 / 1.4
Luminous Opening: Circular (Dia: 0.33m x H: 0m)
CIE Type: Direct

Input Watts (W): 8
Input Voltage (V): 120
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: P565398
CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

Luminous Intensity Polar Plot



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



TEST NUMBER: P565398

CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RF | 20 | | | | 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 | 104 | 100 | 96 | 106 | 102 | 98 | 94 | 97 | 94 | 91 | 93 | 91 | 88 | 90 | 88 | 86 | 84 |
| 2 | 99 | 91 | 84 | 78 | 96 | 89 | 83 | 77 | 85 | 80 | 75 | 82 | 78 | 74 | 79 | 75 | 72 | 70 |
| 3 | 90 | 80 | 72 | 65 | 88 | 78 | 71 | 65 | 75 | 69 | 63 | 72 | 67 | 62 | 70 | 65 | 61 | 59 |
| 4 | 83 | 71 | 62 | 55 | 80 | 69 | 61 | 55 | 67 | 60 | 54 | 64 | 58 | 53 | 62 | 57 | 53 | 50 |
| 5 | 76 | 63 | 54 | 48 | 74 | 62 | 54 | 47 | 60 | 52 | 47 | 58 | 51 | 46 | 56 | 50 | 46 | 44 |
| 6 | 70 | 57 | 48 | 42 | 68 | 56 | 47 | 41 | 54 | 47 | 41 | 52 | 46 | 41 | 51 | 45 | 40 | 38 |
| 7 | 65 | 52 | 43 | 37 | 63 | 51 | 42 | 37 | 49 | 42 | 36 | 48 | 41 | 36 | 46 | 40 | 36 | 34 |
| 8 | 61 | 47 | 39 | 33 | 59 | 46 | 38 | 33 | 45 | 38 | 32 | 44 | 37 | 32 | 43 | 36 | 32 | 30 |
| 9 | 57 | 43 | 35 | 29 | 55 | 43 | 35 | 29 | 41 | 34 | 29 | 40 | 34 | 29 | 39 | 33 | 29 | 27 |
| 10 | 53 | 40 | 32 | 27 | 52 | 39 | 32 | 27 | 38 | 31 | 26 | 37 | 31 | 26 | 36 | 30 | 26 | 24 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 90° | 180° | 270° |
|-----|------|------|------|------|
| 0° | 2573 | 2573 | 2573 | 2573 |
| 5° | 2573 | 2591 | 2586 | 2573 |
| 10° | 2584 | 2599 | 2605 | 2590 |
| 15° | 2604 | 2616 | 2621 | 2597 |
| 20° | 2614 | 2648 | 2650 | 2610 |
| 25° | 2624 | 2667 | 2664 | 2623 |
| 30° | 2617 | 2674 | 2678 | 2607 |
| 35° | 2583 | 2672 | 2660 | 2579 |
| 40° | 2535 | 2641 | 2632 | 2518 |
| 45° | 2457 | 2580 | 2572 | 2439 |
| 50° | 2351 | 2499 | 2483 | 2326 |
| 55° | 2226 | 2400 | 2374 | 2200 |
| 60° | 2090 | 2290 | 2250 | 2064 |
| 65° | 1962 | 2174 | 2130 | 1921 |
| 70° | 1823 | 2061 | 2011 | 1773 |
| 75° | 1677 | 1956 | 1894 | 1619 |
| 80° | 1534 | 1911 | 1818 | 1455 |
| 85° | 1331 | 2029 | 1831 | 1186 |



TEST NUMBER: P565398
 CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------------|--------------|--------------|
| 0°-10° | 21.3 | 3.3 |
| 10°-20° | 62.0 | 9.5 |
| 20°-30° | 96.1 | 14.8 |
| 30°-40° | 116.9 | 18.0 |
| 40°-50° | 118.9 | 18.3 |
| 50°-60° | 102.6 | 15.8 |
| 60°-70° | 74.5 | 11.5 |
| 70°-80° | 42.8 | 6.6 |
| 80°-90° | 13.5 | 2.1 |
| 90°-100° | 0.1 | 0.0 |
| 100°-110° | 0.1 | 0.0 |
| 110°-120° | 0.1 | 0.0 |
| 120°-130° | 0.2 | 0.0 |
| 130°-140° | 0.2 | 0.0 |
| 140°-150° | 0.3 | 0.0 |
| 150°-160° | 0.3 | 0.0 |
| 160°-170° | 0.2 | 0.0 |
| 170°-180° | 0.1 | 0.0 |
| 0°-30° | 179.4 | 27.6 |
| 0°-40° | 296.3 | 45.6 |
| 0°-60° | 517.7 | 79.6 |
| 0°-90° | 648.5 | 99.8 |
| 90°-120° | 0.3 | 0.0 |
| 90°-150° | 0.9 | 0.1 |
| 90°-180° | 2.0 | 0.3 |
| 0°-180° | 650.1 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 90° | 180° | 270° | 360° | Flux |
|------|-----|-----|------|------|------|------|
| 0° | 224 | 224 | 224 | 224 | 224 | |
| 5° | 223 | 225 | 224 | 223 | 223 | 21 |
| 15° | 219 | 220 | 220 | 218 | 219 | 62 |
| 25° | 207 | 210 | 210 | 207 | 207 | 95 |
| 35° | 184 | 191 | 190 | 184 | 184 | 115 |
| 45° | 151 | 159 | 158 | 150 | 151 | 116 |
| 55° | 111 | 120 | 119 | 110 | 111 | 99 |
| 65° | 72 | 80 | 78 | 71 | 72 | 72 |
| 75° | 38 | 44 | 43 | 36 | 38 | 40 |
| 85° | 10 | 15 | 14 | 9 | 10 | 11 |
| 90° | 0 | 3 | 2 | 0 | 0 | 0 |
| 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 | 1 | 0 | 0 |
| 155° | 1 | 1 | 1 | 1 | 1 | 0 |
| 165° | 1 | 1 | 1 | 1 | 1 | 0 |
| 175° | 1 | 1 | 1 | 1 | 1 | 0 |
| 180° | 1 | 1 | 1 | 1 | 1 | |



TEST NUMBER: P565398

CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|--------|-------|
| 0° | 224.1 | 224.1 | 224.1 | 224.1 | 224.1 | 224.1 | 224.1 | 224.1 | 224.1 | 224.1 | 224.1 |
| 0.5° | 224.1 | 224.0 | 224.3 | 222.9 | 224.1 | 224.9 | 224.3 | 224.2 | 224.6 | 224.1 | 224.1 |
| 1° | 224.1 | 224.0 | 224.5 | 223.0 | 224.0 | 225.6 | 224.3 | 224.2 | 224.6 | 224.3 | 224.1 |
| 1.5° | 224.4 | 223.9 | 224.5 | 223.0 | 223.9 | 225.4 | 224.2 | 224.3 | 224.5 | 224.0 | 223.6 |
| 2° | 224.8 | 223.9 | 224.2 | 223.2 | 224.0 | 225.4 | 224.6 | 224.3 | 224.5 | 224.1 | 223.9 |
| 2.5° | 223.9 | 223.7 | 224.0 | 223.2 | 224.5 | 224.8 | 224.7 | 224.4 | 224.9 | 224.2 | 223.4 |
| 3° | 223.9 | 223.3 | 223.9 | 223.2 | 224.2 | 225.2 | 224.8 | 224.4 | 224.6 | 224.5 | 223.8 |
| 3.5° | 223.8 | 223.8 | 222.8 | 222.6 | 224.1 | 225.2 | 224.8 | 223.7 | 224.6 | 223.4 | 223.1 |
| 4° | 223.2 | 223.2 | 222.9 | 223.4 | 224.7 | 224.9 | 224.8 | 223.9 | 224.6 | 223.5 | 223.1 |
| 4.5° | 223.7 | 223.1 | 223.1 | 223.4 | 224.6 | 224.7 | 224.8 | 223.9 | 224.4 | 223.3 | 223.2 |
| 5° | 223.2 | 223.6 | 223.2 | 223.0 | 224.8 | 224.7 | 224.5 | 223.9 | 224.4 | 223.3 | 222.7 |
| 5.5° | 223.9 | 223.3 | 223.2 | 223.4 | 223.8 | 224.7 | 224.6 | 223.9 | 224.2 | 223.3 | 222.6 |
| 6° | 223.4 | 222.7 | 223.0 | 223.4 | 223.8 | 224.6 | 224.6 | 223.8 | 224.1 | 223.4 | 223.0 |
| 6.5° | 222.2 | 222.7 | 222.9 | 222.9 | 223.8 | 224.6 | 224.7 | 223.6 | 224.1 | 223.3 | 222.9 |
| 7° | 221.9 | 222.7 | 222.4 | 222.9 | 223.2 | 224.8 | 224.3 | 223.5 | 224.4 | 222.0 | 222.8 |
| 7.5° | 222.3 | 222.4 | 222.4 | 222.9 | 222.9 | 224.7 | 224.3 | 223.4 | 224.4 | 222.4 | 222.5 |
| 8° | 222.4 | 221.8 | 222.4 | 222.8 | 223.3 | 224.7 | 224.5 | 223.2 | 223.9 | 222.3 | 222.2 |
| 8.5° | 222.3 | 221.8 | 222.1 | 222.7 | 223.3 | 224.2 | 224.5 | 223.5 | 223.5 | 222.0 | 222.0 |
| 9° | 222.3 | 221.6 | 222.0 | 221.8 | 222.9 | 223.8 | 224.5 | 223.5 | 223.5 | 222.2 | 222.0 |
| 9.5° | 221.8 | 221.6 | 222.0 | 222.0 | 222.7 | 223.7 | 224.2 | 223.2 | 223.4 | 222.3 | 221.9 |
| 10° | 221.6 | 221.3 | 221.8 | 222.0 | 222.9 | 223.7 | 223.9 | 223.2 | 223.4 | 222.1 | 221.4 |
| 10.5° | 221.4 | 221.3 | 221.5 | 222.0 | 222.3 | 222.5 | 223.6 | 222.9 | 223.4 | 222.1 | 221.4 |
| 11° | 220.5 | 220.6 | 221.1 | 221.7 | 222.4 | 222.9 | 223.5 | 222.9 | 223.1 | 221.7 | 220.8 |
| 11.5° | 220.5 | 221.1 | 220.4 | 221.5 | 221.9 | 223.0 | 223.2 | 222.9 | 223.2 | 221.4 | 220.6 |
| 12° | 220.1 | 220.4 | 220.8 | 221.0 | 221.9 | 222.7 | 223.2 | 222.8 | 223.0 | 221.2 | 220.5 |
| 12.5° | 220.3 | 219.8 | 220.8 | 220.8 | 222.0 | 222.3 | 223.3 | 222.0 | 222.9 | 220.5 | 219.9 |
| 13° | 220.9 | 219.7 | 221.5 | 220.8 | 221.6 | 222.3 | 223.7 | 221.9 | 222.6 | 220.4 | 219.8 |
| 13.5° | 220.1 | 219.7 | 219.2 | 220.6 | 221.4 | 222.4 | 223.7 | 221.6 | 222.6 | 220.4 | 219.7 |
| 14° | 219.9 | 219.1 | 219.2 | 219.3 | 220.9 | 221.2 | 222.9 | 221.6 | 221.5 | 220.2 | 219.3 |
| 14.5° | 219.8 | 218.9 | 219.1 | 219.2 | 220.8 | 221.2 | 221.5 | 220.9 | 220.8 | 219.7 | 219.0 |
| 15° | 219.1 | 218.6 | 219.1 | 218.9 | 220.1 | 221.1 | 221.4 | 220.9 | 220.5 | 220.3 | 218.3 |
| 15.5° | 218.6 | 218.4 | 218.3 | 218.6 | 219.8 | 221.0 | 221.1 | 220.4 | 220.4 | 218.9 | 218.3 |
| 16° | 217.8 | 218.3 | 218.0 | 218.7 | 219.5 | 220.4 | 220.9 | 220.0 | 220.0 | 218.9 | 217.4 |
| 16.5° | 217.9 | 217.9 | 217.8 | 218.4 | 219.4 | 220.6 | 220.5 | 220.0 | 219.3 | 218.9 | 217.1 |
| 17° | 217.2 | 217.1 | 217.6 | 218.4 | 218.3 | 220.1 | 219.6 | 219.8 | 218.6 | 218.2 | 216.9 |
| 17.5° | 217.0 | 216.7 | 217.3 | 217.8 | 218.3 | 218.8 | 219.5 | 219.3 | 218.3 | 217.5 | 216.8 |
| 18° | 216.3 | 216.5 | 217.2 | 216.8 | 218.0 | 218.8 | 219.4 | 219.0 | 218.2 | 216.6 | 216.3 |
| 18.5° | 215.5 | 215.6 | 216.4 | 216.4 | 217.5 | 218.7 | 219.0 | 218.6 | 218.1 | 216.6 | 216.1 |
| 19° | 215.0 | 215.2 | 215.7 | 216.6 | 217.4 | 218.1 | 218.1 | 217.7 | 217.8 | 216.4 | 215.6 |
| 19.5° | 214.4 | 215.2 | 215.4 | 216.0 | 216.8 | 218.0 | 217.9 | 217.6 | 217.5 | 215.6 | 215.2 |
| 20° | 213.9 | 214.7 | 214.8 | 216.0 | 216.7 | 217.4 | 217.6 | 217.4 | 216.9 | 215.4 | 214.3 |
| 20.5° | 213.4 | 214.1 | 214.1 | 215.1 | 216.0 | 217.2 | 217.0 | 216.3 | 216.3 | 214.9 | 213.9 |
| 21° | 212.9 | 213.5 | 213.7 | 214.4 | 216.0 | 216.3 | 216.4 | 216.2 | 215.4 | 213.7 | 213.2 |
| 21.5° | 212.1 | 212.9 | 212.8 | 213.6 | 215.3 | 215.7 | 215.6 | 216.2 | 214.9 | 213.5 | 212.5 |
| 22° | 211.3 | 212.2 | 212.8 | 213.3 | 214.4 | 215.2 | 215.4 | 215.8 | 214.6 | 212.9 | 212.4 |



TEST NUMBER: P565398

CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|--------|-------|
| 22.5° | 210.6 | 211.4 | 212.0 | 213.2 | 213.5 | 214.9 | 214.9 | 215.0 | 214.4 | 212.2 | 211.5 |
| 23° | 209.9 | 210.4 | 211.4 | 211.7 | 212.8 | 214.1 | 213.6 | 214.1 | 213.6 | 212.4 | 211.1 |
| 23.5° | 209.1 | 209.9 | 210.4 | 211.7 | 212.5 | 213.4 | 213.5 | 213.4 | 212.5 | 211.4 | 209.8 |
| 24° | 208.8 | 209.3 | 209.9 | 211.0 | 211.9 | 213.4 | 212.9 | 212.7 | 212.2 | 211.3 | 209.2 |
| 24.5° | 208.0 | 208.2 | 209.3 | 211.0 | 210.9 | 212.0 | 212.2 | 211.8 | 211.7 | 210.1 | 208.2 |
| 25° | 207.1 | 207.2 | 208.5 | 210.0 | 210.5 | 211.5 | 211.9 | 210.9 | 210.3 | 208.5 | 207.4 |
| 25.5° | 206.0 | 206.7 | 207.6 | 209.0 | 209.7 | 210.9 | 211.3 | 210.7 | 209.8 | 207.9 | 206.5 |
| 26° | 205.2 | 205.8 | 206.9 | 207.8 | 208.6 | 210.5 | 210.3 | 209.5 | 208.7 | 207.2 | 206.0 |
| 26.5° | 204.7 | 205.0 | 206.2 | 207.4 | 207.9 | 209.6 | 210.2 | 208.8 | 208.3 | 206.6 | 205.3 |
| 27° | 203.6 | 204.1 | 205.2 | 206.2 | 207.2 | 208.1 | 208.5 | 208.7 | 208.1 | 205.8 | 204.4 |
| 27.5° | 202.5 | 203.0 | 204.4 | 205.7 | 206.5 | 207.9 | 207.5 | 207.3 | 207.2 | 205.0 | 203.2 |
| 28° | 201.6 | 202.2 | 203.6 | 204.3 | 205.6 | 207.2 | 206.5 | 206.5 | 206.1 | 204.3 | 203.0 |
| 28.5° | 200.6 | 201.2 | 202.5 | 203.4 | 204.7 | 205.8 | 205.6 | 205.8 | 205.4 | 203.2 | 201.9 |
| 29° | 199.8 | 200.3 | 201.5 | 202.5 | 204.0 | 205.0 | 205.2 | 204.8 | 204.7 | 202.2 | 200.8 |
| 29.5° | 198.5 | 199.2 | 200.7 | 201.8 | 202.8 | 204.0 | 204.1 | 203.7 | 203.6 | 201.4 | 199.4 |
| 30° | 197.4 | 198.2 | 199.7 | 200.6 | 201.7 | 203.0 | 203.2 | 202.8 | 202.0 | 200.4 | 198.2 |
| 30.5° | 196.4 | 197.1 | 198.6 | 199.4 | 201.1 | 201.7 | 201.9 | 201.8 | 200.8 | 198.6 | 196.6 |
| 31° | 195.1 | 195.9 | 197.4 | 198.4 | 200.0 | 201.0 | 201.1 | 200.6 | 200.0 | 198.0 | 196.0 |
| 31.5° | 193.9 | 194.6 | 196.1 | 197.4 | 199.2 | 199.8 | 200.3 | 199.7 | 198.9 | 197.1 | 194.9 |
| 32° | 192.5 | 193.2 | 195.2 | 196.1 | 197.7 | 199.1 | 199.3 | 198.7 | 198.1 | 195.9 | 194.3 |
| 32.5° | 191.4 | 192.0 | 193.9 | 195.0 | 196.7 | 198.1 | 198.3 | 197.6 | 196.5 | 194.4 | 192.9 |
| 33° | 190.0 | 190.9 | 192.3 | 193.7 | 195.1 | 197.3 | 197.2 | 196.0 | 195.8 | 193.9 | 191.3 |
| 33.5° | 188.5 | 189.6 | 190.9 | 192.3 | 194.0 | 195.5 | 195.9 | 195.0 | 194.2 | 192.1 | 190.2 |
| 34° | 187.1 | 188.2 | 189.6 | 191.3 | 193.2 | 194.3 | 194.7 | 193.5 | 193.2 | 190.8 | 188.8 |
| 34.5° | 185.6 | 187.0 | 188.5 | 190.0 | 191.8 | 193.1 | 193.2 | 192.5 | 192.2 | 189.4 | 187.4 |
| 35° | 184.3 | 185.6 | 187.2 | 188.9 | 190.6 | 192.0 | 191.8 | 190.7 | 189.8 | 188.0 | 186.2 |
| 35.5° | 182.8 | 184.2 | 186.2 | 187.5 | 189.4 | 190.2 | 190.5 | 189.6 | 189.3 | 187.4 | 184.9 |
| 36° | 181.4 | 182.6 | 184.4 | 185.9 | 188.0 | 189.2 | 189.1 | 188.8 | 187.7 | 185.6 | 183.9 |
| 36.5° | 180.2 | 181.2 | 183.0 | 184.6 | 186.4 | 187.5 | 187.8 | 187.0 | 186.4 | 184.7 | 181.8 |
| 37° | 178.5 | 179.7 | 181.6 | 183.3 | 185.2 | 186.5 | 186.1 | 185.6 | 185.4 | 183.1 | 180.5 |
| 37.5° | 177.0 | 178.3 | 180.3 | 181.8 | 183.5 | 184.7 | 185.3 | 184.2 | 183.8 | 181.4 | 179.9 |
| 38° | 175.6 | 176.8 | 178.6 | 180.3 | 181.9 | 183.4 | 183.7 | 183.0 | 182.7 | 179.9 | 177.9 |
| 38.5° | 174.2 | 175.3 | 177.1 | 178.8 | 180.3 | 182.3 | 181.7 | 181.2 | 180.9 | 178.0 | 176.3 |
| 39° | 172.6 | 173.6 | 175.4 | 177.1 | 179.0 | 180.7 | 180.6 | 180.1 | 179.5 | 176.9 | 174.8 |
| 39.5° | 170.9 | 172.1 | 173.7 | 175.6 | 177.4 | 179.1 | 179.3 | 179.0 | 178.0 | 174.6 | 173.0 |
| 40° | 169.1 | 170.5 | 172.0 | 174.0 | 176.2 | 177.5 | 177.7 | 177.5 | 175.6 | 173.3 | 171.5 |
| 40.5° | 167.4 | 168.6 | 170.2 | 172.4 | 174.4 | 175.6 | 176.1 | 175.5 | 174.3 | 171.8 | 169.7 |
| 41° | 165.8 | 166.9 | 168.3 | 170.7 | 172.8 | 174.2 | 174.5 | 174.0 | 172.5 | 170.0 | 167.5 |
| 41.5° | 164.1 | 165.0 | 167.0 | 169.0 | 170.8 | 172.7 | 172.7 | 172.4 | 171.0 | 168.6 | 166.0 |
| 42° | 162.1 | 163.3 | 165.3 | 167.2 | 169.2 | 171.3 | 171.4 | 170.8 | 169.5 | 166.8 | 164.4 |
| 42.5° | 160.2 | 161.5 | 163.7 | 165.2 | 167.7 | 169.5 | 169.5 | 168.9 | 167.5 | 164.6 | 162.7 |
| 43° | 158.5 | 159.8 | 162.0 | 163.7 | 166.0 | 167.6 | 167.8 | 167.3 | 165.7 | 162.9 | 160.8 |
| 43.5° | 156.7 | 157.9 | 160.2 | 161.9 | 164.0 | 165.6 | 165.9 | 165.5 | 163.9 | 161.2 | 158.9 |
| 44° | 154.9 | 156.2 | 158.4 | 160.1 | 162.4 | 164.0 | 164.1 | 163.5 | 162.2 | 159.3 | 157.2 |
| 44.5° | 153.1 | 154.4 | 156.7 | 158.3 | 160.8 | 162.0 | 162.0 | 161.7 | 160.4 | 157.5 | 155.3 |



TEST NUMBER: P565398

CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|--------|-------|
| 45° | 151.3 | 152.6 | 154.8 | 156.4 | 158.9 | 160.5 | 160.5 | 159.9 | 158.4 | 155.4 | 153.6 |
| 45.5° | 149.4 | 151.0 | 152.7 | 154.7 | 157.2 | 158.6 | 158.5 | 157.8 | 156.6 | 153.8 | 151.3 |
| 46° | 147.5 | 149.1 | 151.1 | 152.8 | 155.2 | 156.6 | 156.6 | 155.8 | 154.9 | 151.8 | 149.3 |
| 46.5° | 145.4 | 147.3 | 149.3 | 150.9 | 153.2 | 154.9 | 155.0 | 154.1 | 152.7 | 150.3 | 147.5 |
| 47° | 143.7 | 145.4 | 147.4 | 149.3 | 151.5 | 152.7 | 152.9 | 152.6 | 150.7 | 148.1 | 145.8 |
| 47.5° | 141.8 | 143.5 | 145.6 | 147.5 | 149.6 | 151.1 | 151.3 | 150.3 | 148.9 | 146.4 | 143.7 |
| 48° | 140.0 | 141.5 | 143.6 | 145.7 | 147.9 | 149.0 | 149.4 | 148.4 | 146.5 | 144.5 | 141.6 |
| 48.5° | 137.9 | 139.5 | 141.7 | 143.6 | 145.9 | 147.3 | 147.5 | 146.2 | 145.5 | 142.5 | 139.9 |
| 49° | 135.7 | 137.5 | 139.7 | 141.5 | 143.7 | 145.3 | 145.5 | 144.3 | 142.8 | 140.6 | 137.8 |
| 49.5° | 133.5 | 135.6 | 137.7 | 139.6 | 141.8 | 143.4 | 143.4 | 142.5 | 141.1 | 138.6 | 136.0 |
| 50° | 131.6 | 133.6 | 136.2 | 137.6 | 139.9 | 141.6 | 141.2 | 140.7 | 139.0 | 136.3 | 133.7 |
| 50.5° | 129.4 | 131.5 | 133.7 | 135.7 | 138.4 | 138.9 | 139.5 | 138.6 | 136.8 | 134.3 | 132.0 |
| 51° | 127.4 | 129.6 | 131.7 | 133.7 | 135.9 | 137.3 | 137.5 | 136.6 | 134.3 | 132.1 | 129.9 |
| 51.5° | 125.5 | 127.7 | 129.6 | 132.4 | 134.0 | 135.3 | 135.4 | 134.3 | 133.0 | 130.3 | 127.8 |
| 52° | 123.6 | 125.8 | 127.7 | 129.6 | 132.1 | 133.1 | 133.3 | 132.3 | 130.7 | 128.5 | 125.9 |
| 52.5° | 121.5 | 123.8 | 125.6 | 127.7 | 129.9 | 131.1 | 131.7 | 130.2 | 128.2 | 126.3 | 123.7 |
| 53° | 119.4 | 121.9 | 123.6 | 125.5 | 128.1 | 129.0 | 129.3 | 128.0 | 126.9 | 124.1 | 121.6 |
| 53.5° | 117.4 | 119.7 | 121.6 | 123.6 | 125.9 | 126.8 | 127.3 | 126.2 | 124.7 | 122.1 | 119.5 |
| 54° | 115.4 | 117.7 | 119.4 | 121.7 | 123.9 | 124.9 | 125.3 | 123.9 | 122.6 | 120.0 | 117.5 |
| 54.5° | 113.2 | 115.7 | 117.6 | 119.7 | 122.0 | 122.6 | 123.0 | 121.9 | 120.4 | 118.1 | 115.4 |
| 55° | 111.2 | 113.6 | 115.5 | 117.7 | 119.9 | 120.8 | 121.1 | 120.0 | 118.6 | 115.9 | 113.1 |
| 55.5° | 109.1 | 111.6 | 113.4 | 115.6 | 118.0 | 118.5 | 119.0 | 118.0 | 116.4 | 114.0 | 111.1 |
| 56° | 107.1 | 109.7 | 111.5 | 113.6 | 116.0 | 116.4 | 116.9 | 115.9 | 114.3 | 111.9 | 109.2 |
| 56.5° | 105.2 | 107.6 | 109.6 | 111.6 | 114.0 | 114.4 | 115.0 | 113.8 | 112.4 | 109.8 | 107.1 |
| 57° | 103.1 | 105.6 | 107.6 | 109.5 | 112.0 | 112.3 | 113.3 | 112.1 | 110.0 | 107.8 | 105.2 |
| 57.5° | 100.9 | 103.4 | 105.4 | 107.3 | 109.7 | 110.3 | 111.2 | 109.8 | 108.0 | 105.8 | 103.2 |
| 58° | 99.0 | 101.3 | 103.6 | 105.4 | 107.8 | 108.4 | 108.9 | 107.4 | 106.0 | 103.7 | 101.1 |
| 58.5° | 97.1 | 99.4 | 101.6 | 103.4 | 105.8 | 106.3 | 106.9 | 105.6 | 104.1 | 101.9 | 99.2 |
| 59° | 95.1 | 97.3 | 99.5 | 101.3 | 103.9 | 104.3 | 104.9 | 103.6 | 102.1 | 99.8 | 97.0 |
| 59.5° | 93.0 | 95.4 | 97.4 | 99.4 | 101.7 | 102.2 | 102.8 | 101.8 | 100.0 | 97.7 | 95.0 |
| 60° | 91.0 | 93.3 | 95.3 | 97.4 | 99.7 | 100.2 | 100.7 | 99.6 | 98.0 | 95.7 | 93.1 |
| 60.5° | 89.1 | 91.3 | 93.4 | 95.5 | 97.5 | 98.1 | 98.7 | 97.6 | 96.1 | 93.7 | 91.2 |
| 61° | 87.1 | 89.3 | 91.6 | 93.4 | 95.8 | 96.2 | 96.6 | 95.5 | 93.8 | 91.9 | 89.2 |
| 61.5° | 85.5 | 87.4 | 89.5 | 91.3 | 93.4 | 94.2 | 94.6 | 93.3 | 91.6 | 89.8 | 87.2 |
| 62° | 83.6 | 85.6 | 87.3 | 89.3 | 91.7 | 92.2 | 92.7 | 91.5 | 89.9 | 87.8 | 85.4 |
| 62.5° | 81.6 | 83.7 | 85.7 | 87.4 | 89.6 | 90.2 | 90.4 | 89.2 | 87.8 | 85.9 | 83.5 |
| 63° | 79.6 | 81.6 | 83.8 | 85.6 | 87.8 | 88.5 | 88.7 | 87.5 | 86.1 | 84.2 | 81.5 |
| 63.5° | 77.8 | 79.7 | 81.8 | 83.6 | 85.7 | 86.4 | 86.5 | 85.7 | 84.3 | 82.1 | 79.5 |
| 64° | 75.9 | 77.9 | 79.8 | 81.8 | 84.0 | 84.8 | 84.7 | 83.8 | 82.2 | 80.3 | 77.6 |
| 64.5° | 74.0 | 76.0 | 78.0 | 79.8 | 81.8 | 82.9 | 82.7 | 81.8 | 80.5 | 78.3 | 75.8 |
| 65° | 72.2 | 74.1 | 76.1 | 77.9 | 80.0 | 80.9 | 80.7 | 79.9 | 78.4 | 76.4 | 73.9 |
| 65.5° | 70.3 | 72.2 | 74.1 | 76.0 | 78.0 | 79.0 | 78.7 | 77.8 | 76.3 | 74.4 | 72.0 |
| 66° | 68.4 | 70.3 | 72.2 | 74.1 | 76.2 | 77.1 | 76.9 | 75.8 | 74.4 | 72.5 | 70.2 |
| 66.5° | 66.7 | 68.4 | 70.3 | 72.2 | 74.3 | 75.0 | 74.9 | 73.9 | 72.6 | 70.5 | 68.3 |
| 67° | 65.0 | 66.5 | 68.6 | 70.3 | 72.4 | 73.2 | 73.0 | 72.1 | 70.9 | 68.7 | 66.4 |



TEST NUMBER: P565398
 CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|-------|------|-------|------|-------|------|--------|------|--------|------|--------|------|
| 67.5° | 63.2 | 64.7 | 66.7 | 68.4 | 70.5 | 71.4 | 71.1 | 70.3 | 68.9 | 66.7 | 64.7 |
| 68° | 61.3 | 63.0 | 64.9 | 66.7 | 68.7 | 69.5 | 69.3 | 68.4 | 67.1 | 64.9 | 62.9 |
| 68.5° | 59.6 | 61.2 | 63.0 | 64.9 | 66.8 | 67.6 | 67.4 | 66.5 | 65.3 | 62.9 | 61.1 |
| 69° | 57.8 | 59.4 | 61.2 | 63.0 | 64.9 | 65.7 | 65.7 | 64.5 | 63.5 | 61.1 | 59.3 |
| 69.5° | 55.9 | 57.6 | 59.4 | 61.3 | 63.0 | 63.8 | 63.8 | 62.9 | 61.7 | 59.3 | 57.6 |
| 70° | 54.3 | 55.9 | 57.7 | 59.5 | 61.4 | 62.0 | 62.0 | 60.9 | 59.9 | 57.6 | 55.8 |
| 70.5° | 52.6 | 54.2 | 55.9 | 57.8 | 59.5 | 60.2 | 60.3 | 59.2 | 58.2 | 56.0 | 54.1 |
| 71° | 50.9 | 52.5 | 54.1 | 55.9 | 57.8 | 58.4 | 58.3 | 57.5 | 56.3 | 54.2 | 52.4 |
| 71.5° | 49.1 | 50.7 | 52.5 | 54.2 | 55.9 | 56.6 | 56.6 | 55.6 | 54.5 | 52.5 | 50.7 |
| 72° | 47.5 | 49.1 | 50.9 | 52.6 | 54.3 | 54.8 | 54.7 | 54.0 | 52.9 | 50.7 | 49.1 |
| 72.5° | 45.9 | 47.4 | 49.1 | 50.9 | 52.7 | 53.3 | 53.3 | 52.4 | 51.0 | 49.1 | 47.4 |
| 73° | 44.1 | 45.7 | 47.5 | 49.2 | 50.9 | 51.6 | 51.5 | 50.7 | 49.3 | 47.4 | 45.8 |
| 73.5° | 42.5 | 44.0 | 45.8 | 47.5 | 49.2 | 49.9 | 49.8 | 48.8 | 47.7 | 45.7 | 44.2 |
| 74° | 40.9 | 42.4 | 44.2 | 45.9 | 47.5 | 48.2 | 48.1 | 47.2 | 46.1 | 44.1 | 42.6 |
| 74.5° | 39.3 | 40.9 | 42.6 | 44.3 | 45.8 | 46.5 | 46.4 | 45.6 | 44.4 | 42.5 | 41.0 |
| 75° | 37.8 | 39.4 | 41.0 | 42.6 | 44.1 | 44.8 | 44.8 | 43.9 | 42.7 | 40.9 | 39.4 |
| 75.5° | 36.3 | 37.8 | 39.4 | 41.0 | 42.6 | 43.1 | 43.2 | 42.3 | 41.2 | 39.4 | 37.9 |
| 76° | 34.7 | 36.3 | 37.9 | 39.4 | 40.9 | 41.5 | 41.5 | 40.7 | 39.5 | 37.8 | 36.3 |
| 76.5° | 33.3 | 34.7 | 36.4 | 37.8 | 39.4 | 39.9 | 40.0 | 39.1 | 38.0 | 36.3 | 34.8 |
| 77° | 31.7 | 33.3 | 34.8 | 36.2 | 37.8 | 38.3 | 38.4 | 37.6 | 36.4 | 34.8 | 33.3 |
| 77.5° | 30.3 | 31.7 | 33.2 | 34.7 | 36.2 | 36.9 | 36.9 | 36.1 | 34.9 | 33.3 | 32.0 |
| 78° | 28.7 | 30.2 | 31.7 | 33.2 | 34.8 | 35.2 | 35.3 | 34.6 | 33.4 | 31.9 | 30.4 |
| 78.5° | 27.3 | 28.8 | 30.2 | 31.7 | 33.3 | 33.8 | 33.7 | 33.0 | 31.9 | 30.4 | 28.9 |
| 79° | 25.9 | 27.4 | 28.7 | 30.1 | 31.8 | 32.2 | 32.2 | 31.5 | 30.4 | 28.9 | 27.5 |
| 79.5° | 24.5 | 26.0 | 27.3 | 28.7 | 30.4 | 30.8 | 30.7 | 30.0 | 28.9 | 27.6 | 26.0 |
| 80° | 23.2 | 24.6 | 25.8 | 27.2 | 28.9 | 29.3 | 29.2 | 28.6 | 27.5 | 26.0 | 24.7 |
| 80.5° | 21.9 | 23.2 | 24.3 | 25.7 | 27.5 | 27.8 | 27.9 | 27.1 | 26.1 | 24.9 | 23.1 |
| 81° | 20.5 | 21.9 | 22.9 | 24.3 | 26.1 | 26.5 | 26.4 | 25.7 | 24.6 | 23.4 | 21.8 |
| 81.5° | 19.1 | 20.6 | 21.8 | 22.9 | 24.8 | 25.2 | 25.1 | 24.2 | 23.2 | 22.0 | 20.6 |
| 82° | 17.8 | 19.3 | 20.4 | 21.7 | 23.3 | 23.6 | 23.6 | 22.8 | 21.8 | 20.8 | 19.3 |
| 82.5° | 16.5 | 18.0 | 19.1 | 20.4 | 21.9 | 22.1 | 22.1 | 21.4 | 20.5 | 19.4 | 17.9 |
| 83° | 15.2 | 16.6 | 17.7 | 18.9 | 20.8 | 21.0 | 21.0 | 20.2 | 19.1 | 18.0 | 16.7 |
| 83.5° | 13.9 | 15.3 | 16.4 | 17.6 | 19.4 | 19.5 | 19.7 | 18.9 | 17.9 | 16.7 | 15.5 |
| 84° | 12.6 | 14.0 | 15.0 | 16.3 | 18.0 | 17.9 | 18.2 | 17.5 | 16.6 | 15.4 | 13.8 |
| 84.5° | 11.4 | 12.7 | 13.7 | 15.0 | 16.7 | 16.8 | 16.9 | 16.3 | 15.2 | 14.2 | 12.7 |
| 85° | 10.1 | 11.4 | 12.4 | 13.7 | 15.4 | 15.6 | 15.6 | 14.8 | 13.9 | 12.9 | 11.6 |
| 85.5° | 8.9 | 10.2 | 11.1 | 12.4 | 14.1 | 14.3 | 14.2 | 13.6 | 12.7 | 11.6 | 10.3 |
| 86° | 7.7 | 8.9 | 10.0 | 11.1 | 12.8 | 13.0 | 13.0 | 12.5 | 11.6 | 10.3 | 9.0 |
| 86.5° | 6.5 | 7.7 | 8.7 | 9.8 | 11.6 | 11.8 | 11.7 | 11.1 | 10.2 | 9.1 | 7.8 |
| 87° | 5.3 | 6.5 | 7.4 | 8.5 | 10.3 | 10.5 | 10.4 | 9.8 | 8.9 | 7.9 | 6.7 |
| 87.5° | 4.2 | 5.3 | 6.2 | 7.4 | 9.0 | 9.2 | 9.2 | 8.6 | 7.7 | 6.6 | 5.4 |
| 88° | 3.0 | 4.1 | 5.1 | 6.1 | 7.7 | 7.9 | 8.0 | 7.4 | 6.5 | 5.5 | 4.4 |
| 88.5° | 1.8 | 2.8 | 3.8 | 5.0 | 6.5 | 6.7 | 6.7 | 6.2 | 5.3 | 4.6 | 3.1 |
| 89° | 0.9 | 1.6 | 2.6 | 3.6 | 5.3 | 5.5 | 5.5 | 5.0 | 4.2 | 3.0 | 1.8 |
| 89.5° | 0.4 | 0.7 | 1.5 | 2.4 | 4.1 | 4.4 | 4.3 | 3.7 | 2.8 | 1.7 | 0.7 |



TEST NUMBER: P565398
 CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|--------|-----|-------|-----|-------|-----|--------|------|--------|------|--------|------|
| 90° | 0.2 | 0.3 | 0.6 | 1.3 | 2.7 | 3.0 | 3.0 | 2.5 | 1.6 | 0.6 | 0.0 |
| 90.5° | 0.1 | 0.2 | 0.2 | 0.6 | 1.4 | 1.6 | 1.7 | 1.3 | 0.6 | 0.0 | 0.0 |
| 91° | 0.1 | 0.2 | 0.1 | 0.2 | 0.4 | 0.5 | 0.5 | 0.4 | 0.0 | 0.0 | 0.0 |
| 91.5° | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 92° | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 92.5° | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 93° | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 93.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 94° | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 94.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 95° | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 95.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 96° | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 96.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 97° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 97.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| 98° | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| 98.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 |
| 99° | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 99.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 100° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 100.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 101° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 101.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 102° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 102.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 103° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 103.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 104° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 104.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 105° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 105.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 106° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
| 106.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
| 107° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 107.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 108° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 |
| 108.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 |
| 109° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 |
| 109.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 |
| 110° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 |
| 110.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 111° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 111.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
| 112° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |



TEST NUMBER: P565398
 CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|--------|-----|-------|-----|-------|-----|--------|------|--------|------|--------|------|
| 112.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 |
| 113° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 | 0.3 |
| 113.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.2 |
| 114° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 |
| 114.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 |
| 115° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 115.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 |
| 116° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 116.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 |
| 117° | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 |
| 117.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 |
| 118° | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 |
| 118.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 |
| 119° | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.3 |
| 119.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 120° | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 |
| 120.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 121° | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 121.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 122° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 122.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 123° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 123.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 124° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 124.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 |
| 125° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.4 | 0.3 |
| 125.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.4 | 0.4 | 0.3 | 0.4 | 0.3 |
| 126° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 |
| 126.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 127° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 127.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 128° | 0.0 | 0.1 | 0.0 | 0.1 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| 128.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 |
| 129° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 |
| 129.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 |
| 130° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| 130.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| 131° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| 131.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| 132° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 132.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 133° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 133.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 134° | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 134.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |



TEST NUMBER: P565398

CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|--------|-----|-------|-----|-------|-----|--------|------|--------|------|--------|------|
| 135° | 0.0 | 0.1 | 0.0 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 |
| 135.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 |
| 136° | 0.0 | 0.1 | 0.0 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 136.5° | 0.0 | 0.1 | 0.0 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 137° | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 137.5° | 0.1 | 0.1 | 0.0 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 |
| 138° | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 |
| 138.5° | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 139° | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 |
| 139.5° | 0.2 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.6 |
| 140° | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.6 |
| 140.5° | 0.3 | 0.3 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 |
| 141° | 0.3 | 0.3 | 0.1 | 0.1 | 0.4 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 |
| 141.5° | 0.3 | 0.3 | 0.1 | 0.1 | 0.4 | 0.5 | 0.4 | 0.4 | 0.4 | 0.6 | 0.5 |
| 142° | 0.3 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.6 | 0.5 |
| 142.5° | 0.3 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 |
| 143° | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 |
| 143.5° | 0.4 | 0.5 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 |
| 144° | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 |
| 144.5° | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 |
| 145° | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 |
| 145.5° | 0.4 | 0.4 | 0.1 | 0.4 | 0.6 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.5 |
| 146° | 0.4 | 0.4 | 0.1 | 0.4 | 0.6 | 0.6 | 0.5 | 0.4 | 0.5 | 0.6 | 0.6 |
| 146.5° | 0.4 | 0.4 | 0.1 | 0.4 | 0.5 | 0.6 | 0.5 | 0.4 | 0.5 | 0.6 | 0.6 |
| 147° | 0.4 | 0.4 | 0.1 | 0.4 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 |
| 147.5° | 0.4 | 0.4 | 0.2 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 |
| 148° | 0.5 | 0.4 | 0.1 | 0.4 | 0.5 | 0.6 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 |
| 148.5° | 0.4 | 0.4 | 0.3 | 0.4 | 0.5 | 0.6 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 |
| 149° | 0.6 | 0.4 | 0.3 | 0.4 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 149.5° | 0.6 | 0.5 | 0.3 | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 150° | 0.6 | 0.6 | 0.2 | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 150.5° | 0.6 | 0.6 | 0.2 | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 |
| 151° | 0.6 | 0.6 | 0.3 | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 |
| 151.5° | 0.6 | 0.6 | 0.3 | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 |
| 152° | 0.8 | 0.6 | 0.4 | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.7 |
| 152.5° | 0.7 | 0.6 | 0.4 | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 |
| 153° | 0.7 | 0.6 | 0.4 | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 153.5° | 0.7 | 0.6 | 0.4 | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.8 |
| 154° | 0.7 | 0.6 | 0.5 | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.8 |
| 154.5° | 0.7 | 0.6 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 | 0.8 | 0.6 | 0.7 | 0.7 |
| 155° | 0.8 | 0.6 | 0.5 | 0.5 | 0.7 | 0.7 | 0.6 | 0.7 | 0.6 | 0.6 | 0.7 |
| 155.5° | 0.8 | 0.8 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.7 | 0.7 | 0.8 | 0.7 |
| 156° | 0.8 | 0.8 | 0.6 | 0.6 | 0.7 | 0.6 | 0.8 | 0.7 | 0.7 | 0.8 | 0.7 |
| 156.5° | 0.8 | 0.8 | 0.6 | 0.6 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 157° | 0.8 | 0.8 | 0.6 | 0.6 | 0.7 | 0.8 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |



TEST NUMBER: P565398

CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|--------|-----|-------|-----|-------|-----|--------|------|--------|------|--------|------|
| 157.5° | 0.8 | 0.8 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.8 | 0.7 | 0.7 | 0.8 |
| 158° | 0.8 | 0.8 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.7 | 0.8 |
| 158.5° | 0.8 | 0.8 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.7 | 0.8 |
| 159° | 0.8 | 0.8 | 0.6 | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 159.5° | 0.8 | 0.8 | 0.6 | 0.8 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 160° | 0.8 | 0.8 | 0.6 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 160.5° | 0.8 | 0.8 | 0.6 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 161° | 0.8 | 0.8 | 0.6 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 161.5° | 0.8 | 0.8 | 0.6 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 162° | 0.8 | 0.8 | 0.6 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 |
| 162.5° | 0.8 | 0.8 | 0.6 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 |
| 163° | 0.8 | 0.8 | 0.6 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 163.5° | 0.8 | 0.8 | 0.6 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 164° | 0.8 | 0.8 | 0.6 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 164.5° | 0.8 | 0.8 | 0.6 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 165° | 0.8 | 0.8 | 0.6 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 165.5° | 0.8 | 0.8 | 0.6 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 166° | 0.8 | 0.8 | 0.6 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 166.5° | 0.8 | 0.8 | 0.6 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 167° | 0.8 | 0.8 | 0.6 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 167.5° | 0.8 | 0.8 | 0.6 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 168° | 0.8 | 0.8 | 0.6 | 0.9 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 168.5° | 0.8 | 0.9 | 0.6 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 169° | 0.8 | 0.8 | 0.6 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 169.5° | 0.8 | 0.8 | 0.6 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 170° | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 170.5° | 0.8 | 1.0 | 0.8 | 0.9 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 171° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 171.5° | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 172° | 0.8 | 0.9 | 0.8 | 0.9 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 172.5° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 173° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 173.5° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 174° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 174.5° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 175° | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 175.5° | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.7 | 0.8 | 0.8 | 0.9 | 0.8 | 0.8 |
| 176° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 176.5° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 177° | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 177.5° | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 178° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 178.5° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 179° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 179.5° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |



TEST NUMBER: P565398
CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|------|-----|-------|-----|-------|-----|--------|------|--------|------|--------|------|
| 180° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |



TEST NUMBER: P565398

CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|-------|--------|-------|--------|-------|--------|-------|
| 0° | 224.1 | 224.1 | 224.1 | 224.1 | 224.1 | 224.1 |
| 0.5° | 224.1 | 224.3 | 224.5 | 224.6 | 224.0 | 224.1 |
| 1° | 223.4 | 224.3 | 224.6 | 224.4 | 223.8 | 224.1 |
| 1.5° | 223.4 | 224.1 | 224.2 | 224.3 | 223.8 | 224.4 |
| 2° | 223.4 | 223.9 | 224.3 | 224.2 | 223.7 | 224.8 |
| 2.5° | 223.3 | 223.6 | 223.3 | 223.9 | 223.6 | 223.9 |
| 3° | 223.0 | 223.9 | 224.3 | 223.9 | 223.8 | 223.9 |
| 3.5° | 222.9 | 223.7 | 224.2 | 223.7 | 223.6 | 223.8 |
| 4° | 223.0 | 223.8 | 223.9 | 223.4 | 223.5 | 223.2 |
| 4.5° | 223.0 | 223.6 | 224.2 | 223.3 | 222.7 | 223.7 |
| 5° | 222.8 | 223.2 | 223.6 | 223.3 | 222.8 | 223.2 |
| 5.5° | 222.7 | 223.2 | 223.4 | 223.5 | 222.5 | 223.9 |
| 6° | 222.4 | 223.3 | 223.3 | 223.5 | 222.3 | 223.4 |
| 6.5° | 222.3 | 223.2 | 223.3 | 223.0 | 222.0 | 222.2 |
| 7° | 222.0 | 223.2 | 222.3 | 222.6 | 222.0 | 221.9 |
| 7.5° | 221.8 | 222.9 | 223.4 | 222.6 | 222.1 | 222.3 |
| 8° | 221.8 | 222.3 | 223.5 | 222.7 | 221.6 | 222.4 |
| 8.5° | 221.8 | 223.4 | 222.7 | 222.5 | 221.8 | 222.3 |
| 9° | 221.8 | 223.3 | 222.3 | 221.8 | 221.6 | 222.3 |
| 9.5° | 221.0 | 222.1 | 221.8 | 221.3 | 221.5 | 221.8 |
| 10° | 220.3 | 222.1 | 221.8 | 221.1 | 221.0 | 221.6 |
| 10.5° | 220.1 | 221.5 | 221.4 | 221.2 | 220.7 | 221.4 |
| 11° | 220.1 | 221.2 | 220.9 | 221.0 | 220.8 | 220.5 |
| 11.5° | 220.1 | 220.8 | 220.6 | 220.9 | 220.5 | 220.5 |
| 12° | 219.6 | 220.0 | 220.8 | 220.3 | 220.4 | 220.1 |
| 12.5° | 219.0 | 220.0 | 219.9 | 219.9 | 220.2 | 220.3 |
| 13° | 218.9 | 219.5 | 219.5 | 219.5 | 219.9 | 220.9 |
| 13.5° | 218.4 | 218.8 | 219.5 | 219.4 | 218.8 | 220.1 |
| 14° | 218.4 | 219.3 | 218.3 | 219.0 | 218.5 | 219.9 |
| 14.5° | 218.0 | 218.6 | 219.4 | 219.1 | 218.5 | 219.8 |
| 15° | 217.2 | 218.5 | 218.6 | 218.2 | 217.7 | 219.1 |
| 15.5° | 217.3 | 218.1 | 217.4 | 217.6 | 217.3 | 218.6 |
| 16° | 217.0 | 218.0 | 217.6 | 217.4 | 217.1 | 217.8 |
| 16.5° | 216.7 | 217.2 | 217.3 | 217.2 | 216.9 | 217.9 |
| 17° | 216.7 | 216.7 | 217.3 | 216.7 | 216.0 | 217.2 |
| 17.5° | 216.0 | 215.8 | 216.0 | 215.8 | 215.9 | 217.0 |
| 18° | 215.2 | 215.4 | 215.5 | 215.4 | 215.2 | 216.3 |
| 18.5° | 215.0 | 215.4 | 215.2 | 214.6 | 214.7 | 215.5 |
| 19° | 214.0 | 214.8 | 214.4 | 214.6 | 213.9 | 215.0 |
| 19.5° | 213.6 | 214.3 | 213.5 | 214.6 | 213.9 | 214.4 |
| 20° | 212.8 | 213.6 | 213.5 | 213.5 | 212.9 | 213.9 |
| 20.5° | 212.1 | 212.9 | 213.0 | 212.4 | 212.7 | 213.4 |
| 21° | 211.5 | 212.6 | 212.2 | 212.1 | 212.2 | 212.9 |
| 21.5° | 211.0 | 212.0 | 211.9 | 211.7 | 211.4 | 212.1 |
| 22° | 210.2 | 211.5 | 211.5 | 210.8 | 210.6 | 211.3 |



TEST NUMBER: P565398
 CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|-------|--------|-------|--------|-------|--------|-------|
| 22.5° | 209.8 | 210.7 | 210.1 | 210.1 | 210.0 | 210.6 |
| 23° | 208.9 | 210.1 | 209.1 | 209.1 | 209.2 | 209.9 |
| 23.5° | 208.1 | 209.1 | 208.6 | 208.3 | 208.4 | 209.1 |
| 24° | 207.7 | 208.5 | 208.0 | 207.5 | 208.0 | 208.8 |
| 24.5° | 206.7 | 207.9 | 207.7 | 206.6 | 207.3 | 208.0 |
| 25° | 205.7 | 207.0 | 206.7 | 205.8 | 206.0 | 207.1 |
| 25.5° | 205.1 | 205.9 | 205.7 | 204.9 | 204.9 | 206.0 |
| 26° | 204.2 | 205.3 | 204.7 | 203.9 | 204.2 | 205.2 |
| 26.5° | 203.8 | 204.3 | 203.9 | 203.0 | 203.2 | 204.7 |
| 27° | 202.7 | 203.2 | 202.2 | 202.0 | 202.1 | 203.6 |
| 27.5° | 201.7 | 202.1 | 201.4 | 201.0 | 201.2 | 202.5 |
| 28° | 200.6 | 201.1 | 201.0 | 199.8 | 200.1 | 201.6 |
| 28.5° | 200.1 | 199.8 | 199.9 | 198.8 | 199.4 | 200.6 |
| 29° | 198.8 | 198.9 | 198.9 | 197.6 | 198.3 | 199.8 |
| 29.5° | 197.9 | 197.8 | 197.8 | 196.4 | 197.2 | 198.5 |
| 30° | 196.6 | 196.6 | 196.5 | 195.3 | 196.2 | 197.4 |
| 30.5° | 195.5 | 195.5 | 195.3 | 194.3 | 195.3 | 196.4 |
| 31° | 194.5 | 194.5 | 193.8 | 193.2 | 193.7 | 195.1 |
| 31.5° | 193.4 | 193.2 | 192.6 | 192.1 | 192.3 | 193.9 |
| 32° | 192.1 | 191.6 | 191.2 | 190.8 | 191.1 | 192.5 |
| 32.5° | 190.6 | 190.4 | 189.9 | 189.6 | 190.0 | 191.4 |
| 33° | 189.5 | 189.3 | 188.6 | 188.3 | 188.3 | 190.0 |
| 33.5° | 188.1 | 188.1 | 187.3 | 186.9 | 187.5 | 188.5 |
| 34° | 186.8 | 186.6 | 186.1 | 185.5 | 185.8 | 187.1 |
| 34.5° | 185.8 | 185.4 | 184.8 | 184.1 | 184.1 | 185.6 |
| 35° | 184.2 | 184.0 | 183.4 | 182.7 | 183.0 | 184.3 |
| 35.5° | 182.9 | 182.7 | 181.8 | 181.1 | 181.5 | 182.8 |
| 36° | 181.4 | 181.2 | 180.3 | 179.6 | 180.0 | 181.4 |
| 36.5° | 180.3 | 179.2 | 178.7 | 178.2 | 178.8 | 180.2 |
| 37° | 179.0 | 177.6 | 176.9 | 176.6 | 177.3 | 178.5 |
| 37.5° | 177.5 | 176.3 | 175.6 | 175.0 | 175.3 | 177.0 |
| 38° | 176.1 | 174.9 | 174.1 | 173.5 | 173.7 | 175.6 |
| 38.5° | 173.5 | 173.5 | 172.6 | 171.9 | 172.3 | 174.2 |
| 39° | 172.4 | 171.7 | 170.9 | 170.1 | 170.6 | 172.6 |
| 39.5° | 171.0 | 169.9 | 169.1 | 168.7 | 168.9 | 170.9 |
| 40° | 169.3 | 168.0 | 167.3 | 167.0 | 167.1 | 169.1 |
| 40.5° | 167.2 | 166.2 | 165.6 | 165.2 | 165.6 | 167.4 |
| 41° | 165.4 | 164.4 | 163.8 | 163.4 | 164.1 | 165.8 |
| 41.5° | 163.8 | 162.6 | 162.0 | 161.5 | 162.0 | 164.1 |
| 42° | 161.9 | 160.9 | 160.3 | 159.6 | 160.1 | 162.1 |
| 42.5° | 160.1 | 159.2 | 158.6 | 157.7 | 158.4 | 160.2 |
| 43° | 158.5 | 157.4 | 156.8 | 155.9 | 156.6 | 158.5 |
| 43.5° | 156.5 | 155.6 | 154.8 | 154.2 | 154.8 | 156.7 |
| 44° | 154.7 | 153.7 | 152.8 | 152.2 | 153.1 | 154.9 |
| 44.5° | 152.9 | 151.9 | 151.1 | 150.4 | 151.4 | 153.1 |



TEST NUMBER: P565398
 CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|-------|--------|-------|--------|-------|--------|-------|
| 45° | 150.8 | 150.2 | 149.1 | 148.5 | 149.4 | 151.3 |
| 45.5° | 148.9 | 148.3 | 147.2 | 146.6 | 147.4 | 149.4 |
| 46° | 147.0 | 146.4 | 145.3 | 144.8 | 145.4 | 147.5 |
| 46.5° | 145.2 | 144.4 | 143.3 | 142.8 | 143.4 | 145.4 |
| 47° | 143.5 | 142.4 | 141.2 | 141.0 | 141.5 | 143.7 |
| 47.5° | 141.4 | 140.3 | 139.2 | 139.0 | 139.4 | 141.8 |
| 48° | 139.4 | 138.3 | 137.1 | 137.1 | 137.5 | 140.0 |
| 48.5° | 137.2 | 136.4 | 135.0 | 135.0 | 135.7 | 137.9 |
| 49° | 135.1 | 134.2 | 132.9 | 133.0 | 133.9 | 135.7 |
| 49.5° | 133.2 | 132.2 | 130.9 | 131.0 | 131.8 | 133.5 |
| 50° | 131.4 | 130.2 | 129.0 | 129.1 | 129.9 | 131.6 |
| 50.5° | 129.2 | 128.1 | 127.0 | 127.1 | 127.7 | 129.4 |
| 51° | 127.3 | 126.0 | 125.1 | 125.0 | 125.6 | 127.4 |
| 51.5° | 125.3 | 124.0 | 123.1 | 123.2 | 123.8 | 125.5 |
| 52° | 123.4 | 122.1 | 121.0 | 121.2 | 121.7 | 123.6 |
| 52.5° | 121.1 | 120.0 | 119.0 | 119.2 | 119.6 | 121.5 |
| 53° | 119.1 | 118.2 | 116.9 | 116.9 | 117.6 | 119.4 |
| 53.5° | 117.4 | 116.2 | 114.8 | 114.8 | 115.7 | 117.4 |
| 54° | 115.0 | 113.9 | 112.8 | 112.6 | 113.4 | 115.4 |
| 54.5° | 113.2 | 111.9 | 110.7 | 110.7 | 111.4 | 113.2 |
| 55° | 111.1 | 109.9 | 108.7 | 108.7 | 109.6 | 111.2 |
| 55.5° | 109.0 | 107.8 | 106.8 | 106.7 | 107.7 | 109.1 |
| 56° | 106.8 | 105.9 | 104.5 | 104.6 | 105.5 | 107.1 |
| 56.5° | 104.8 | 103.9 | 102.6 | 102.7 | 103.4 | 105.2 |
| 57° | 102.9 | 101.8 | 100.6 | 100.7 | 101.5 | 103.1 |
| 57.5° | 100.8 | 99.7 | 98.6 | 98.7 | 99.5 | 100.9 |
| 58° | 99.0 | 97.8 | 96.5 | 96.6 | 97.4 | 99.0 |
| 58.5° | 97.0 | 95.8 | 94.5 | 94.5 | 95.5 | 97.1 |
| 59° | 94.8 | 93.8 | 92.6 | 92.8 | 93.5 | 95.1 |
| 59.5° | 93.0 | 91.8 | 90.6 | 90.8 | 91.5 | 93.0 |
| 60° | 91.1 | 89.9 | 88.6 | 88.6 | 89.6 | 91.0 |
| 60.5° | 89.2 | 87.9 | 86.9 | 86.8 | 87.5 | 89.1 |
| 61° | 87.1 | 86.0 | 84.9 | 84.9 | 85.8 | 87.1 |
| 61.5° | 85.4 | 84.1 | 83.0 | 83.0 | 83.9 | 85.5 |
| 62° | 83.4 | 82.2 | 81.3 | 81.0 | 82.0 | 83.6 |
| 62.5° | 81.5 | 80.3 | 79.3 | 79.0 | 80.0 | 81.6 |
| 63° | 79.4 | 78.3 | 77.4 | 77.1 | 78.2 | 79.6 |
| 63.5° | 77.5 | 76.3 | 75.5 | 75.4 | 76.3 | 77.8 |
| 64° | 75.6 | 74.4 | 73.7 | 73.5 | 74.4 | 75.9 |
| 64.5° | 73.9 | 72.5 | 71.9 | 71.7 | 72.6 | 74.0 |
| 65° | 71.8 | 70.7 | 70.1 | 69.7 | 70.7 | 72.2 |
| 65.5° | 69.9 | 68.8 | 68.3 | 67.9 | 68.9 | 70.3 |
| 66° | 68.1 | 67.0 | 66.3 | 66.0 | 67.0 | 68.4 |
| 66.5° | 66.3 | 65.2 | 64.5 | 64.3 | 65.2 | 66.7 |
| 67° | 64.6 | 63.3 | 62.7 | 62.3 | 63.3 | 65.0 |



TEST NUMBER: P565398
 CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|-------|--------|------|--------|------|--------|------|
| 67.5° | 62.7 | 61.6 | 60.8 | 60.7 | 61.6 | 63.2 |
| 68° | 61.0 | 59.8 | 59.1 | 58.8 | 59.8 | 61.3 |
| 68.5° | 59.1 | 58.0 | 57.2 | 57.2 | 58.1 | 59.6 |
| 69° | 57.4 | 56.1 | 55.5 | 55.3 | 56.3 | 57.8 |
| 69.5° | 55.5 | 54.5 | 53.9 | 53.8 | 54.5 | 55.9 |
| 70° | 53.9 | 52.8 | 52.1 | 52.0 | 53.0 | 54.3 |
| 70.5° | 52.3 | 51.1 | 50.4 | 50.5 | 51.2 | 52.6 |
| 71° | 50.7 | 49.5 | 48.8 | 48.7 | 49.5 | 50.9 |
| 71.5° | 49.0 | 47.7 | 47.2 | 47.0 | 47.9 | 49.1 |
| 72° | 47.3 | 46.0 | 45.5 | 45.4 | 46.3 | 47.5 |
| 72.5° | 45.8 | 44.3 | 43.9 | 43.8 | 44.7 | 45.9 |
| 73° | 44.0 | 42.6 | 42.3 | 42.3 | 43.0 | 44.1 |
| 73.5° | 42.6 | 41.1 | 40.7 | 40.7 | 41.4 | 42.5 |
| 74° | 41.0 | 39.6 | 39.0 | 39.1 | 39.8 | 40.9 |
| 74.5° | 39.4 | 38.0 | 37.6 | 37.7 | 38.2 | 39.3 |
| 75° | 38.0 | 36.5 | 35.9 | 35.9 | 36.7 | 37.8 |
| 75.5° | 36.4 | 34.9 | 34.3 | 34.6 | 35.2 | 36.3 |
| 76° | 34.8 | 33.5 | 32.8 | 33.0 | 33.6 | 34.7 |
| 76.5° | 33.4 | 32.0 | 31.4 | 31.4 | 32.1 | 33.3 |
| 77° | 31.9 | 30.5 | 29.9 | 30.0 | 30.7 | 31.7 |
| 77.5° | 30.5 | 29.0 | 28.5 | 28.6 | 29.2 | 30.3 |
| 78° | 28.9 | 27.6 | 27.0 | 27.1 | 27.7 | 28.7 |
| 78.5° | 27.6 | 26.2 | 25.6 | 25.7 | 26.3 | 27.3 |
| 79° | 26.1 | 24.7 | 24.1 | 24.4 | 24.8 | 25.9 |
| 79.5° | 24.7 | 23.3 | 22.8 | 22.9 | 23.5 | 24.5 |
| 80° | 23.3 | 22.0 | 21.6 | 21.7 | 22.1 | 23.2 |
| 80.5° | 21.9 | 20.7 | 20.2 | 20.4 | 20.9 | 21.9 |
| 81° | 20.7 | 19.4 | 18.8 | 19.0 | 19.6 | 20.5 |
| 81.5° | 19.4 | 18.0 | 17.5 | 17.6 | 18.2 | 19.1 |
| 82° | 18.0 | 16.7 | 16.2 | 16.3 | 16.9 | 17.8 |
| 82.5° | 16.7 | 15.4 | 14.9 | 15.0 | 15.6 | 16.5 |
| 83° | 15.4 | 14.0 | 13.5 | 13.7 | 14.3 | 15.2 |
| 83.5° | 14.2 | 12.7 | 12.3 | 12.5 | 13.0 | 13.9 |
| 84° | 12.9 | 11.5 | 11.0 | 11.2 | 11.8 | 12.6 |
| 84.5° | 11.7 | 10.2 | 9.7 | 9.9 | 10.6 | 11.4 |
| 85° | 10.4 | 9.0 | 8.6 | 8.7 | 9.3 | 10.1 |
| 85.5° | 9.2 | 7.8 | 7.3 | 7.4 | 8.1 | 8.9 |
| 86° | 8.0 | 6.6 | 6.1 | 6.2 | 6.9 | 7.7 |
| 86.5° | 6.7 | 5.3 | 5.0 | 5.2 | 5.8 | 6.5 |
| 87° | 5.6 | 4.2 | 3.8 | 3.9 | 4.5 | 5.3 |
| 87.5° | 4.4 | 3.0 | 2.6 | 2.7 | 3.3 | 4.2 |
| 88° | 3.2 | 1.7 | 1.5 | 1.6 | 2.2 | 3.0 |
| 88.5° | 1.8 | 1.0 | 0.6 | 0.7 | 1.1 | 1.8 |
| 89° | 0.7 | 0.4 | 0.2 | 0.3 | 0.4 | 0.9 |
| 89.5° | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.4 |



TEST NUMBER: P565398
 CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|--------|--------|------|--------|------|--------|------|
| 90° | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
| 90.5° | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 91° | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 91.5° | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 92° | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 92.5° | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 93° | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 |
| 93.5° | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 |
| 94° | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 |
| 94.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 95° | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 95.5° | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 96° | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 96.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 97° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 97.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 98° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 98.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 99° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 99.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 100° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 100.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 101° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 101.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 102° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 102.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 103° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 103.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 104° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 104.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 105° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 105.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 106° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 106.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 107° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 107.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 108° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 108.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 109° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 109.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 110° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 110.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 111° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 111.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 112° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |



TEST NUMBER: P565398
 CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|--------|--------|------|--------|------|--------|------|
| 112.5° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 113° | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 113.5° | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 114° | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 114.5° | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 115° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 115.5° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 116° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 116.5° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 117° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 117.5° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 118° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 118.5° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 119° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 119.5° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 120° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 120.5° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 121° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 121.5° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 122° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 122.5° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 123° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 123.5° | 0.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 124° | 0.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 124.5° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 125° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 125.5° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 126° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 126.5° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 127° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 127.5° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 128° | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 128.5° | 0.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 129° | 0.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 129.5° | 0.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 130° | 0.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 130.5° | 0.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 131° | 0.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 131.5° | 0.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 132° | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 |
| 132.5° | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 |
| 133° | 0.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 133.5° | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 |
| 134° | 0.4 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 |
| 134.5° | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 |



TEST NUMBER: P565398
 CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|--------|--------|------|--------|------|--------|------|
| 135° | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 |
| 135.5° | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 |
| 136° | 0.4 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 |
| 136.5° | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 |
| 137° | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 |
| 137.5° | 0.4 | 0.3 | 0.1 | 0.0 | 0.0 | 0.1 |
| 138° | 0.4 | 0.3 | 0.1 | 0.0 | 0.1 | 0.1 |
| 138.5° | 0.4 | 0.3 | 0.1 | 0.0 | 0.4 | 0.1 |
| 139° | 0.4 | 0.3 | 0.1 | 0.0 | 0.4 | 0.1 |
| 139.5° | 0.4 | 0.3 | 0.1 | 0.0 | 0.3 | 0.2 |
| 140° | 0.4 | 0.3 | 0.1 | 0.0 | 0.3 | 0.1 |
| 140.5° | 0.4 | 0.4 | 0.1 | 0.0 | 0.3 | 0.3 |
| 141° | 0.4 | 0.4 | 0.1 | 0.0 | 0.4 | 0.3 |
| 141.5° | 0.4 | 0.4 | 0.3 | 0.1 | 0.4 | 0.3 |
| 142° | 0.4 | 0.6 | 0.3 | 0.1 | 0.4 | 0.3 |
| 142.5° | 0.5 | 0.6 | 0.3 | 0.4 | 0.4 | 0.3 |
| 143° | 0.5 | 0.6 | 0.3 | 0.3 | 0.4 | 0.4 |
| 143.5° | 0.5 | 0.6 | 0.5 | 0.3 | 0.4 | 0.4 |
| 144° | 0.5 | 0.6 | 0.5 | 0.3 | 0.4 | 0.4 |
| 144.5° | 0.5 | 0.6 | 0.4 | 0.4 | 0.4 | 0.4 |
| 145° | 0.5 | 0.6 | 0.4 | 0.4 | 0.5 | 0.4 |
| 145.5° | 0.5 | 0.6 | 0.4 | 0.4 | 0.5 | 0.4 |
| 146° | 0.5 | 0.6 | 0.4 | 0.4 | 0.5 | 0.4 |
| 146.5° | 0.5 | 0.6 | 0.4 | 0.4 | 0.5 | 0.4 |
| 147° | 0.5 | 0.6 | 0.4 | 0.4 | 0.6 | 0.4 |
| 147.5° | 0.6 | 0.6 | 0.4 | 0.5 | 0.6 | 0.4 |
| 148° | 0.6 | 0.6 | 0.4 | 0.5 | 0.6 | 0.5 |
| 148.5° | 0.6 | 0.6 | 0.5 | 0.6 | 0.6 | 0.4 |
| 149° | 0.6 | 0.6 | 0.5 | 0.7 | 0.7 | 0.6 |
| 149.5° | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 |
| 150° | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 150.5° | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 |
| 151° | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 |
| 151.5° | 0.6 | 0.6 | 0.6 | 0.8 | 0.6 | 0.6 |
| 152° | 0.6 | 0.6 | 0.7 | 0.8 | 0.7 | 0.8 |
| 152.5° | 0.6 | 0.6 | 0.7 | 0.8 | 0.7 | 0.7 |
| 153° | 0.6 | 0.6 | 0.6 | 0.8 | 0.7 | 0.7 |
| 153.5° | 0.6 | 0.6 | 0.6 | 0.8 | 0.7 | 0.7 |
| 154° | 0.7 | 0.6 | 0.6 | 0.8 | 0.8 | 0.7 |
| 154.5° | 0.7 | 0.7 | 0.6 | 0.8 | 0.8 | 0.7 |
| 155° | 0.7 | 0.7 | 0.6 | 0.8 | 0.8 | 0.8 |
| 155.5° | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 |
| 156° | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 |
| 156.5° | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 |
| 157° | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 |



TEST NUMBER: P565398
 CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|--------|--------|------|--------|------|--------|------|
| 157.5° | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 158° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 158.5° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 159° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 159.5° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 160° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 160.5° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 161° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 161.5° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 162° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 162.5° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 163° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 163.5° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 164° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 164.5° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 165° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 165.5° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 166° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 166.5° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 167° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 167.5° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 168° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 168.5° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 169° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 169.5° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 170° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 170.5° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 171° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 171.5° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 172° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 172.5° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 173° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 173.5° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 174° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 174.5° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 175° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 175.5° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 176° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 176.5° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 177° | 0.8 | 0.7 | 0.8 | 0.8 | 0.9 | 0.9 |
| 177.5° | 0.9 | 0.7 | 0.8 | 0.8 | 0.9 | 0.9 |
| 178° | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 178.5° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 179° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |
| 179.5° | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 |



TEST NUMBER: P565398
CATALOG NUMBER: HLBQL4069FS1E-3500K-UNIT

CANDELA DISTRIBUTION (continued):

| | | | | | | |
|------|--------|------|--------|------|--------|------|
| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
| 180° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |

(END OF REPORT)