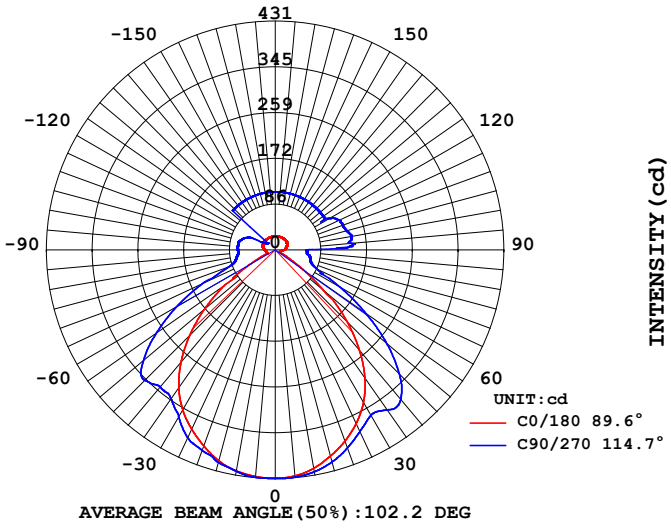
# LUMINAIRE PHOTOMETRIC TEST REPORT

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |

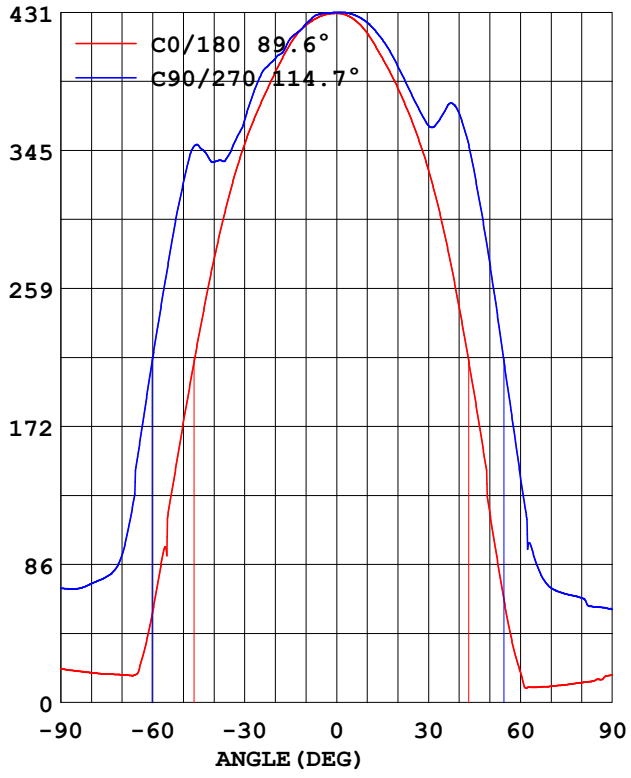
| | | | | | |
|---|---|---|---|---|---|
| DATA OF LAMP | | Imax(cd) | 431.1 | S/MH(C0/180) | 1.21 |
| MODEL | 24V-480D-2700K | EFFICIENCY(%) | 100.0 | S/MH(C90/270) | 1.26 |
| NOMINAL POWER(W) | 16 | TOTAL FLUX(lm) | 1436.2 | Voltage(V) | 23.90 |
| RATED VOLTAGE(V) | 24 | EFFICIENCY(lm/W) | 91.8 | Current(A) | 0.654 |
| NOMINAL FLUX(lm) | 1436.2 | η up(%) | 27.2 | Power(W) | 15.64 |
| LAMPS QUANTITY | 1 | η down(%) | 72.8 | Power Factor(PF) | 1.000 |
| TEST VOLTAGE(V) | 23.9 | Effictive Flux(lm) | 1324.5 | EEI | 0.161 |

LUMINOUS INTENSITY DISTRIBUTION




AVERAGE BEAM ANGLE(50%):102.2 DEG

LUMINOUS INTENSITY DISTRIBUTION




Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# Color Temperature Data List

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |

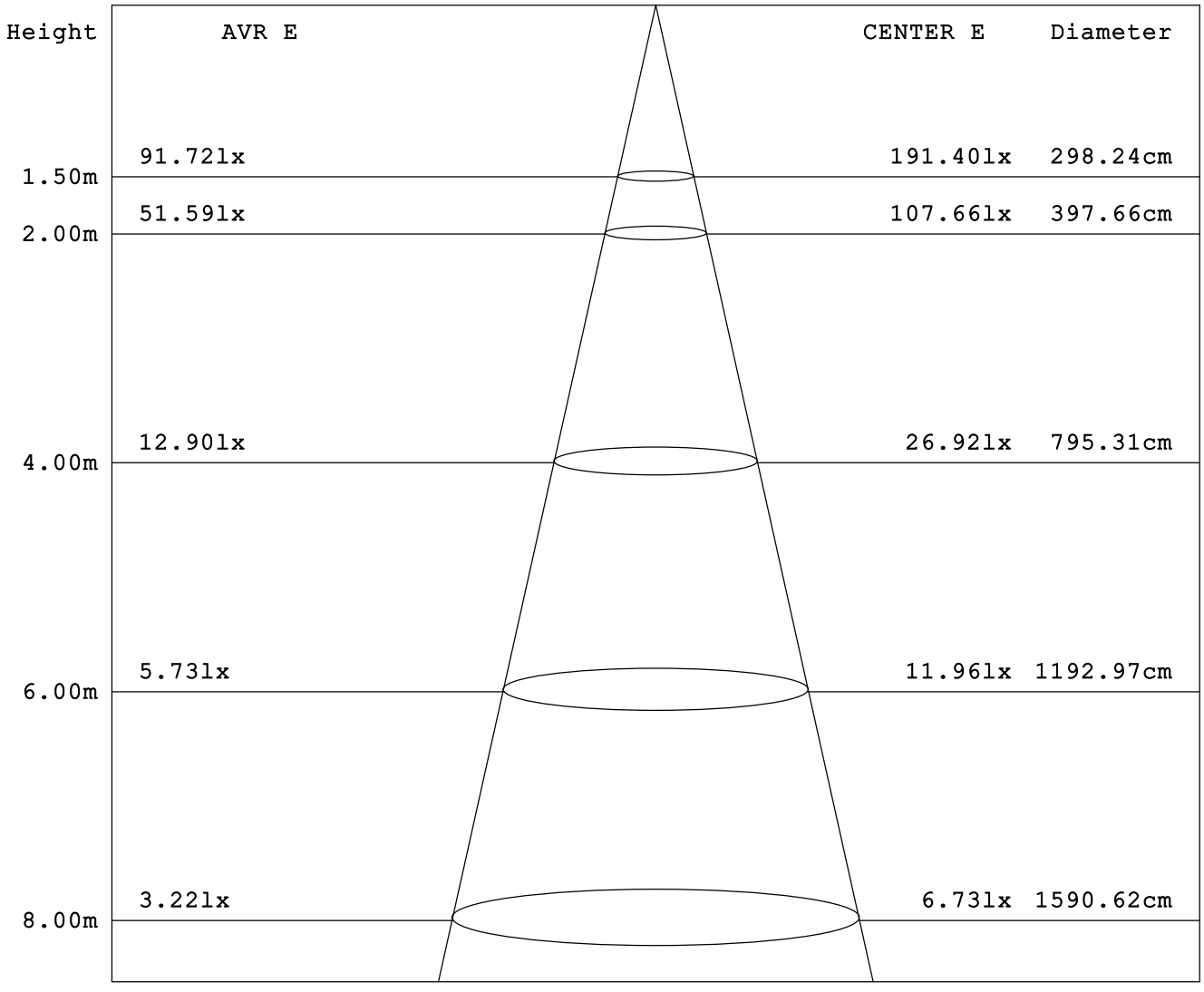
Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

## AVERAGE AND CENTER E Figure

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |




Angle:89.7deg

Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# ZONAL FLUX DIAGRAM

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |

| γ | C0 | C90 | C180 | C270 | | | | | γ | zone | total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.0 | 428.9 | 430.3 | 427.8 | 430.0 | | | | | 0- 5 | 9.876 | 9.876 |
| 10.0 | 423.3 | 424.3 | 418.6 | 425.0 | | | | | 5- 10 | 29.29 | 39.16 |
| 15.0 | 412.5 | 415.5 | 403.4 | 414.8 | | | | | 10- 15 | 47.54 | 86.71 |
| 20.0 | 395.1 | 403.1 | 385.6 | 399.0 | | | | | 15- 20 | 63.89 | 150.6 |
| 25.0 | 375.1 | 392.6 | 363.8 | 379.9 | | | | | 20- 25 | 77.98 | 228.5 |
| 30.0 | 352.0 | 367.5 | 336.7 | 361.9 | | | | | 25- 30 | 89.17 | 317.7 |
| 35.0 | 321.8 | 345.4 | 300.9 | 366.0 | | | | | 30- 35 | 97.32 | 415.0 |
| 40.0 | 283.5 | 338.2 | 255.3 | 371.4 | | | | | 35- 40 | 103.9 | 519.0 |
| 45.0 | 237.2 | 345.8 | 202.3 | 339.7 | | | | | 40- 45 | 106.0 | 625.0 |
| 50.0 | 185.5 | 332.9 | 145.0 | 287.1 | | | | | 45- 50 | 101.7 | 726.7 |
| 55.0 | 130.2 | 285.9 | 72.67 | 223.3 | | | | | 50- 55 | 86.63 | 813.4 |
| 60.0 | 69.34 | 229.5 | 26.53 | 157.5 | | | | | 55- 60 | 66.13 | 879.5 |
| 65.0 | 25.72 | 168.5 | 9.494 | 96.20 | | | | | 60- 65 | 45.04 | 924.6 |
| 70.0 | 17.08 | 102.3 | 9.900 | 74.09 | | | | | 65- 70 | 29.91 | 954.5 |
| 75.0 | 17.65 | 80.54 | 10.83 | 68.57 | | | | | 70- 75 | 23.73 | 978.2 |
| 80.0 | 18.30 | 75.59 | 12.05 | 66.30 | | | | | 75- 80 | 22.71 | 1001 |
| 85.0 | 19.35 | 71.61 | 13.22 | 60.01 | | | | | 80- 85 | 22.33 | 1023 |
| 90.0 | 20.49 | 71.09 | 16.67 | 58.91 | | | | | 85- 90 | 22.10 | 1045 |
| 95.0 | 22.03 | 71.94 | 17.97 | 140.6 | | | | | 90- 95 | 27.06 | 1072 |
| 100.0 | 23.57 | 71.53 | 19.39 | 144.7 | | | | | 95-100 | 34.37 | 1107 |
| 105.0 | 24.83 | 71.25 | 20.81 | 142.5 | | | | | 100-105 | 34.43 | 1141 |
| 110.0 | 25.68 | 66.42 | 22.27 | 136.0 | | | | | 105-110 | 32.98 | 1174 |
| 115.0 | 26.29 | 60.13 | 23.69 | 134.2 | | | | | 110-115 | 31.23 | 1206 |
| 120.0 | 26.65 | 47.35 | 24.71 | 128.2 | | | | | 115-120 | 28.92 | 1234 |
| 125.0 | 26.82 | 24.46 | 25.44 | 110.6 | | | | | 120-125 | 23.35 | 1258 |
| 130.0 | 26.69 | 19.88 | 26.69 | 110.2 | | | | | 125-130 | 20.34 | 1278 |
| 135.0 | 26.45 | 65.10 | 26.45 | 110.1 | | | | | 130-135 | 18.90 | 1297 |
| 140.0 | 26.41 | 110.0 | 26.41 | 110.0 | | | | | 135-140 | 25.99 | 1323 |
| 145.0 | 26.41 | 109.9 | 26.41 | 109.9 | | | | | 140-145 | 23.72 | 1347 |
| 150.0 | 26.37 | 109.9 | 26.37 | 109.9 | | | | | 145-150 | 21.23 | 1368 |
| 155.0 | 26.37 | 109.8 | 26.37 | 109.8 | | | | | 150-155 | 18.60 | 1387 |
| 160.0 | 26.33 | 109.8 | 26.33 | 109.8 | | | | | 155-160 | 15.83 | 1402 |
| 165.0 | 26.33 | 109.8 | 26.33 | 109.8 | | | | | 160-165 | 12.95 | 1415 |
| 170.0 | 26.33 | 109.7 | 26.33 | 109.7 | | | | | 165-170 | 9.985 | 1425 |
| 175.0 | 26.29 | 109.7 | 26.29 | 109.7 | | | | | 170-175 | 6.941 | 1432 |
| 180.0 | 26.29 | 109.6 | 26.29 | 109.6 | | | | | 175-180 | 3.849 | 1436 |
| DEG | LUMINOUS INTENSITY:cd | | | | | | | | | UNIT:lm | |

Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

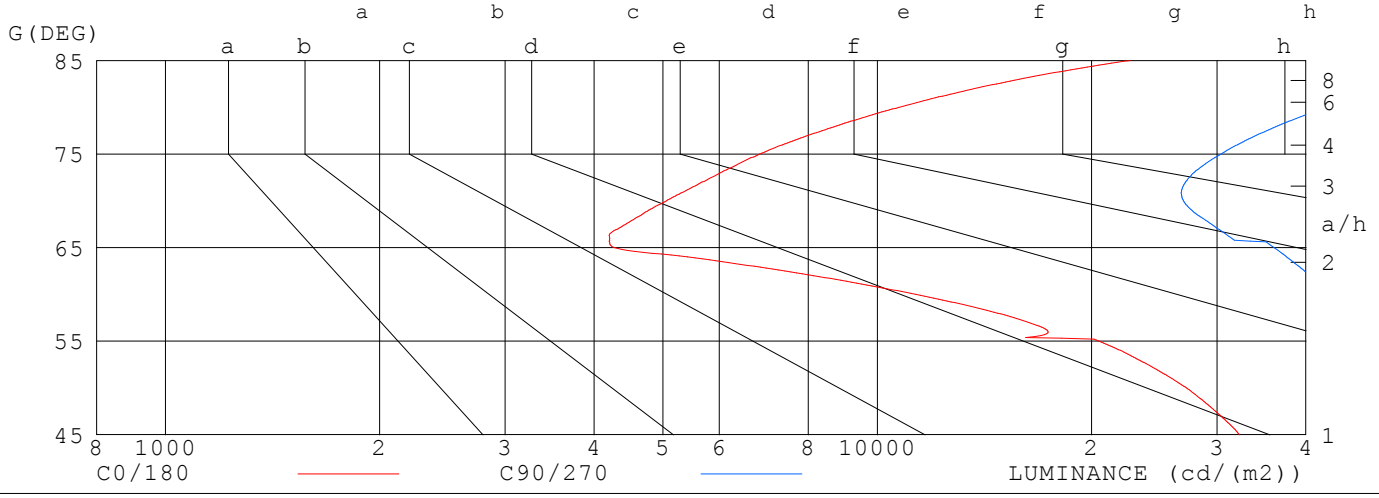
# LUMINANCE LIMITATION CURVES

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |

## LUMINANCE LIMITATION CURVES

| GLARE | CLASS | ILLUMINANCE (lx) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.15 | A | 2000 | 1000 | 500 | <=300 | | | | |
| 1.50 | B | | 2000 | 1000 | 500 | <=300 | | | |
| 1.85 | C | | | 2000 | 1000 | 500 | <=300 | | |
| 2.20 | D | | | | 2000 | 1000 | 500 | <=300 | |
| 2.55 | E | | | | | 2000 | 1000 | 500 | <=300 |
| | | a | b | c | d | e | f | g | h |




| LUMINANCE cd/m2 | | |
|---|---|---|
| G(DEG) | C0/180 | C90/270 |
| 85 | 22627 | 81474 |
| 80 | 10726 | 42809 |
| 75 | 6835 | 30415 |
| 70 | 5054 | 27097 |
| 65 | 4340 | 36379 |
| 60 | 11532 | 43255 |
| 55 | 20678 | 47858 |
| 50 | 27353 | 50577 |
| 45 | 32416 | 49178 |

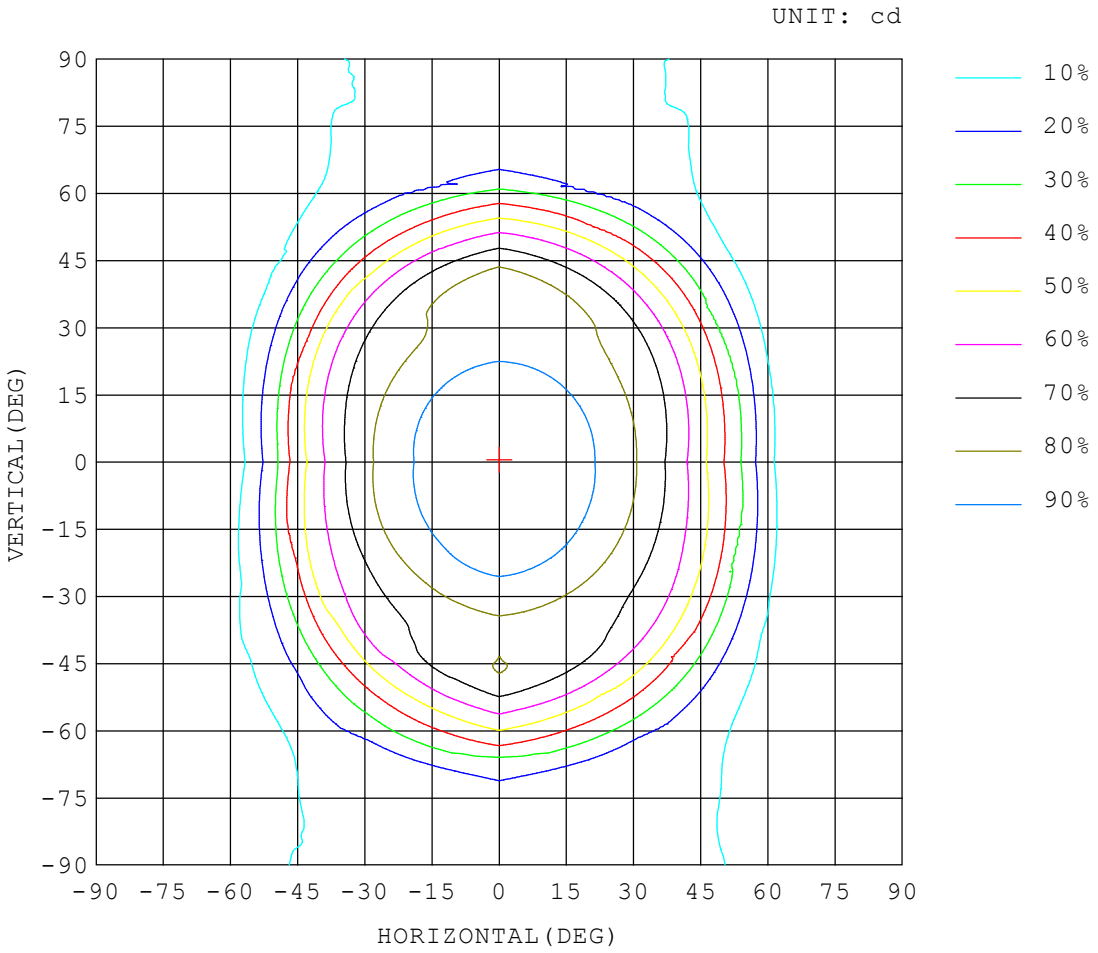
Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# ISOCANDELA DIAGRAM

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |



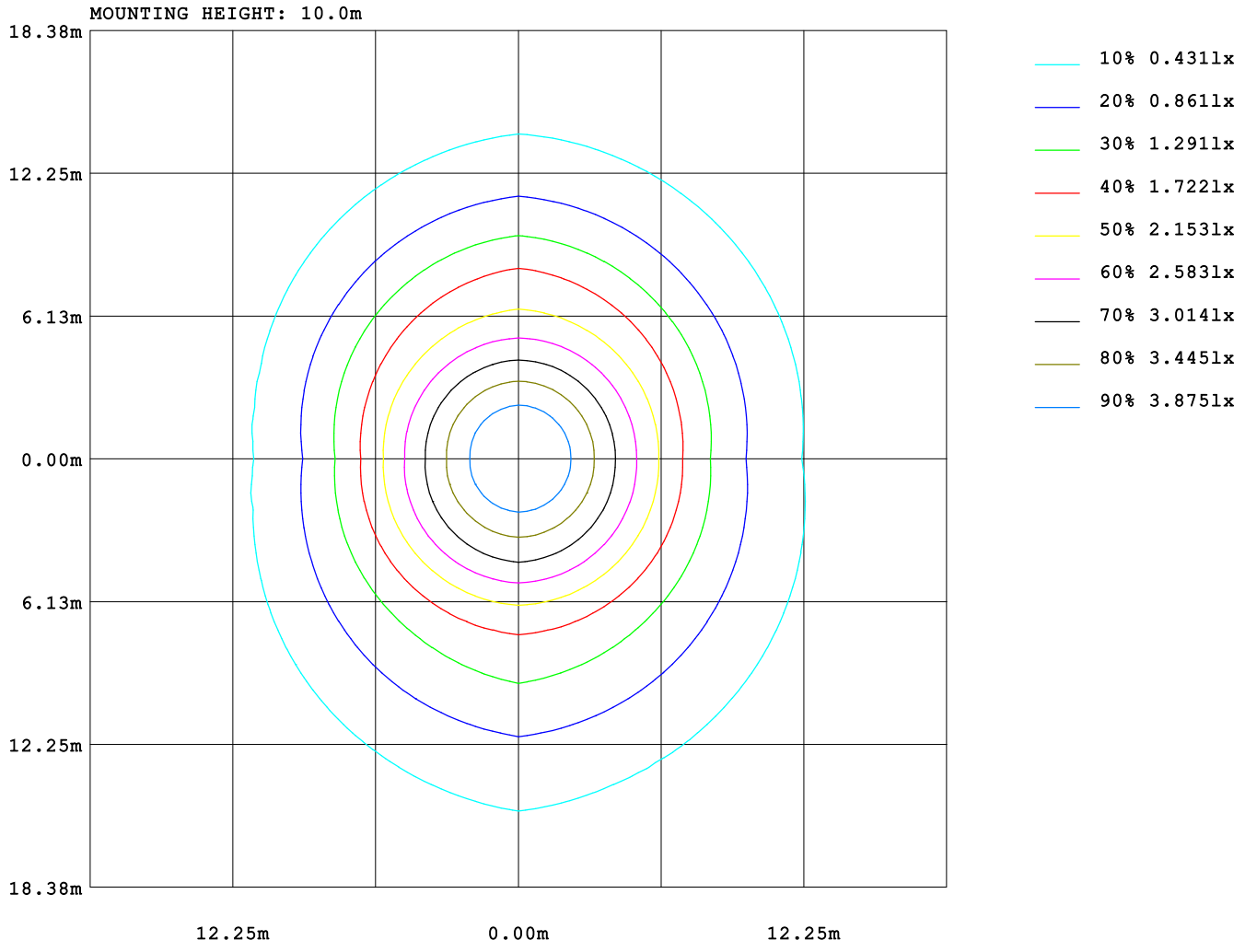

Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# ISOLUX DIAGRAM

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |




Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# AREA LUMINOUS FLUX

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |

AREA FLUX DIAGRAM — UNIT:lm

| VERTICAL(DEG) | -90 | -80 | -70 | -60 | -50 | -40 | -30 | -20 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | Φ t | Φ a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90 | 0.05 | 0.19 | 0.36 | 0.57 | 0.80 | 1.04 | 1.30 | 1.54 | 1.75 | 1.75 | 1.56 | 1.34 | 1.09 | 0.85 | 0.62 | 0.40 | 0.21 | 0.06 | 15.5 | 10.3 |
| 80 | 0.05 | 0.17 | 0.34 | 0.56 | 0.82 | 1.11 | 1.41 | 1.70 | 1.96 | 1.97 | 1.73 | 1.46 | 1.17 | 0.89 | 0.62 | 0.39 | 0.21 | 0.06 | 16.6 | 12.4 |
| 70 | 0.05 | 0.16 | 0.33 | 0.55 | 0.82 | 1.17 | 1.61 | 2.15 | 2.65 | 2.68 | 2.22 | 1.69 | 1.24 | 0.90 | 0.62 | 0.39 | 0.20 | 0.06 | 19.5 | 15.6 |
| 60 | 0.05 | 0.16 | 0.32 | 0.54 | 0.92 | 1.79 | 3.21 | 4.75 | 5.94 | 6.04 | 5.03 | 3.58 | 2.08 | 1.05 | 0.62 | 0.38 | 0.20 | 0.06 | 36.7 | 33.6 |
| 50 | 0.04 | 0.15 | 0.29 | 0.56 | 1.49 | 3.50 | 5.94 | 8.08 | 9.52 | 9.61 | 8.36 | 6.45 | 4.15 | 1.96 | 0.69 | 0.36 | 0.19 | 0.06 | 61.4 | 59.2 |
| 40 | 0.04 | 0.14 | 0.27 | 0.71 | 2.49 | 5.40 | 8.16 | 9.99 | 10.9 | 10.9 | 10.2 | 8.55 | 6.02 | 3.24 | 1.07 | 0.35 | 0.18 | 0.06 | 78.7 | 77.2 |
| 30 | 0.04 | 0.12 | 0.24 | 0.97 | 3.46 | 6.69 | 9.06 | 10.4 | 11.3 | 11.3 | 10.6 | 9.38 | 7.21 | 4.26 | 1.56 | 0.34 | 0.17 | 0.06 | 87.3 | 86.1 |
| | 0.04 | 0.11 | 0.21 | 1.18 | 4.07 | 7.25 | 9.56 | 11.3 | 12.3 | 12.4 | 11.4 | 9.85 | 7.75 | 4.82 | 1.93 | 0.37 | 0.16 | 0.05 | 94.9 | 93.9 |
| | 0.04 | 0.09 | 0.16 | 1.20 | 4.21 | 7.39 | 9.91 | 11.7 | 12.8 | 12.9 | 11.9 | 10.2 | 7.91 | 4.98 | 2.05 | 0.37 | 0.15 | 0.05 | 98.3 | 97.4 |
| | 0.04 | 0.10 | 0.18 | 1.24 | 4.23 | 7.34 | 9.94 | 11.7 | 12.8 | 12.9 | 11.9 | 10.2 | 7.86 | 4.99 | 2.10 | 0.39 | 0.15 | 0.05 | 98.4 | 97.5 |
| | 0.04 | 0.11 | 0.26 | 1.31 | 4.17 | 7.10 | 9.60 | 11.4 | 12.3 | 12.4 | 11.5 | 9.88 | 7.60 | 4.92 | 2.06 | 0.42 | 0.16 | 0.05 | 95.5 | 94.5 |
| -30 | 0.04 | 0.13 | 0.31 | 1.20 | 3.72 | 6.59 | 8.78 | 10.5 | 11.5 | 11.6 | 10.6 | 9.10 | 7.12 | 4.52 | 1.79 | 0.42 | 0.18 | 0.06 | 88.4 | 87.2 |
| -40 | 0.04 | 0.14 | 0.33 | 1.01 | 2.94 | 5.79 | 8.01 | 9.41 | 10.2 | 10.3 | 9.63 | 8.40 | 6.41 | 3.69 | 1.37 | 0.41 | 0.19 | 0.06 | 78.5 | 77.2 |
| -50 | 0.05 | 0.16 | 0.33 | 0.83 | 2.11 | 4.30 | 6.79 | 8.74 | 9.97 | 10.0 | 9.03 | 7.30 | 4.94 | 2.58 | 0.96 | 0.40 | 0.20 | 0.06 | 68.8 | 67.1 |
| -60 | 0.05 | 0.17 | 0.35 | 0.65 | 1.39 | 2.76 | 4.53 | 6.32 | 7.76 | 7.86 | 6.60 | 4.90 | 3.06 | 1.52 | 0.74 | 0.41 | 0.21 | 0.06 | 49.3 | 47.1 |
| -70 | 0.05 | 0.18 | 0.37 | 0.62 | 0.98 | 1.54 | 2.39 | 3.36 | 4.23 | 4.26 | 3.43 | 2.46 | 1.61 | 1.05 | 0.69 | 0.42 | 0.22 | 0.06 | 27.9 | 25.0 |
| -80 | 0.05 | 0.19 | 0.38 | 0.62 | 0.92 | 1.25 | 1.61 | 1.97 | 2.29 | 2.30 | 2.00 | 1.67 | 1.32 | 0.99 | 0.69 | 0.43 | 0.22 | 0.06 | 19.0 | 15.8 |
| -90 | 0.06 | 0.21 | 0.40 | 0.65 | 0.93 | 1.22 | 1.53 | 1.82 | 2.07 | 2.08 | 1.84 | 1.57 | 1.27 | 0.98 | 0.70 | 0.45 | 0.23 | 0.07 | 18.1 | 14.8 |
| HORIZONTAL(DEG) | | | | | | | | | | | | | | | | | | | | |
| Φ t | 0.82 | 2.67 | 5.43 | 14.9 | 40.5 | 73.3 | 103 | 127 | 143 | 144 | 130 | 108 | 79.9 | 48.2 | 20.9 | 7.09 | 3.43 | 1.05 | 1436 | |
| Φ a | 0.00 | 0.00 | 0.00 | 8.19 | 36.3 | 72.1 | 103 | 127 | 143 | 144 | 130 | 108 | 79.5 | 45.6 | 15.0 | 0.59 | 0.00 | 0.00 | | 1325 |

Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

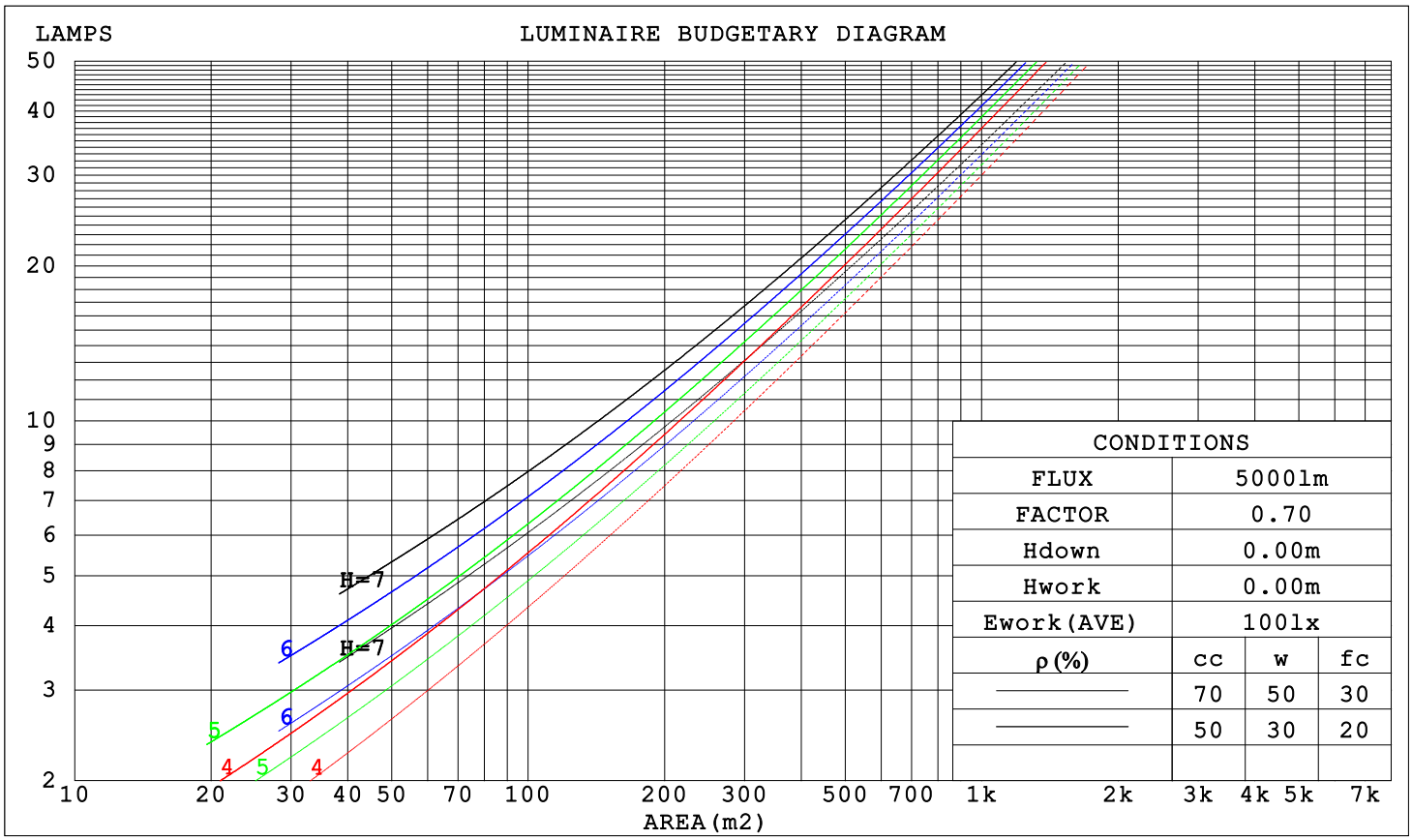
Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |

| ρcc | 80% | | | 70% | | | 50% | | | 30% | | | 10% | | | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ρw | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 0 |
| ρfc | 20% | | | 20% | | | 20% | | | 20% | | | 20% | | | 0 |
| RCR | RCR:Room Cavity Ratio | | | Coefficients of Utilization(CU) | | | | | | | | | | | | |
| 0.0 | 1.13 | 1.13 | 1.13 | 1.07 | 1.07 | 1.07 | .96 | .96 | .96 | .86 | .86 | .86 | .77 | .77 | .77 | .73 |
| 1.0 | .98 | .94 | .90 | .93 | .90 | .86 | .84 | .81 | .79 | .76 | .74 | .72 | .68 | .66 | .65 | .61 |
| 2.0 | .86 | .80 | .75 | .82 | .77 | .72 | .74 | .70 | .66 | .67 | .64 | .61 | .60 | .58 | .55 | .52 |
| 3.0 | .76 | .69 | .63 | .73 | .66 | .61 | .66 | .61 | .56 | .60 | .56 | .52 | .54 | .51 | .48 | .45 |
| 4.0 | .68 | .60 | .54 | .65 | .58 | .52 | .59 | .53 | .48 | .54 | .49 | .45 | .49 | .45 | .42 | .39 |
| 5.0 | .61 | .53 | .47 | .58 | .51 | .45 | .53 | .47 | .42 | .48 | .43 | .39 | .44 | .40 | .36 | .34 |
| 6.0 | .55 | .47 | .41 | .53 | .45 | .39 | .48 | .42 | .37 | .44 | .39 | .35 | .40 | .36 | .32 | .30 |
| 7.0 | .50 | .42 | .36 | .48 | .40 | .35 | .44 | .37 | .33 | .40 | .35 | .31 | .37 | .32 | .29 | .26 |
| 8.0 | .45 | .37 | .32 | .44 | .36 | .31 | .40 | .34 | .29 | .37 | .31 | .28 | .34 | .29 | .26 | .24 |
| 9.0 | .42 | .34 | .29 | .40 | .33 | .28 | .37 | .31 | .26 | .34 | .29 | .25 | .31 | .27 | .23 | .21 |
| 10.0 | .38 | .31 | .26 | .37 | .30 | .25 | .34 | .28 | .24 | .31 | .26 | .23 | .29 | .24 | .21 | .19 |




Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# WEC AND CCEC

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |

| ρcc | 80% | | | 70% | | | 50% | | | 30% | | | 10% | | | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ρw | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 0 |
| ρfc | 20% | | | 20% | | | 20% | | | 20% | | | 20% | | | 0 |
| RCR | RCR:Room Cavity Ratio | | | | | | Wall Exitance Coeffcients(WEC) | | | | | | | | | |
| 0.0 | | | | | | | | | | | | | | | | |
| 1.0 | .293 | .167 | .053 | .278 | .159 | .050 | .249 | .143 | .046 | .223 | .129 | .041 | .199 | .115 | .037 | |
| 2.0 | .267 | .147 | .045 | .254 | .140 | .043 | .228 | .127 | .039 | .204 | .115 | .036 | .182 | .103 | .032 | |
| 3.0 | .246 | .131 | .039 | .234 | .125 | .038 | .210 | .114 | .035 | .189 | .103 | .032 | .169 | .093 | .029 | |
| 4.0 | .228 | .118 | .035 | .216 | .113 | .033 | .195 | .103 | .031 | .175 | .094 | .028 | .157 | .085 | .026 | |
| 5.0 | .211 | .108 | .031 | .201 | .103 | .030 | .182 | .095 | .028 | .164 | .086 | .026 | .147 | .078 | .024 | |
| 6.0 | .197 | .099 | .028 | .188 | .095 | .027 | .170 | .087 | .025 | .153 | .079 | .023 | .137 | .072 | .021 | |
| 7.0 | .184 | .091 | .026 | .175 | .087 | .025 | .159 | .080 | .023 | .144 | .074 | .021 | .129 | .067 | .020 | |
| 8.0 | .173 | .084 | .024 | .165 | .081 | .023 | .149 | .075 | .021 | .135 | .068 | .020 | .122 | .062 | .018 | |
| 9.0 | .162 | .078 | .022 | .155 | .075 | .021 | .141 | .070 | .020 | .127 | .064 | .018 | .115 | .058 | .017 | |
| 10.0 | .153 | .073 | .020 | .146 | .071 | .020 | .133 | .065 | .018 | .121 | .060 | .017 | .109 | .055 | .016 | |

| ρcc | 80% | | | 70% | | | 50% | | | 30% | | | 10% | | | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ρw | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 0 |
| ρfc | 20% | | | 20% | | | 20% | | | 20% | | | 20% | | | 0 |
| RCR | RCR:Room Cavity Ratio | | | | | | Ceiling Cavity Exitance Coefficients(CCEC) | | | | | | | | | |
| 0.0 | .398 | .398 | .398 | .340 | .340 | .340 | .232 | .232 | .232 | .133 | .133 | .133 | .043 | .043 | .043 | |
| 1.0 | .388 | .365 | .345 | .332 | .314 | .297 | .227 | .216 | .205 | .131 | .125 | .119 | .042 | .040 | .039 | |
| 2.0 | .379 | .342 | .311 | .325 | .295 | .269 | .223 | .204 | .188 | .128 | .119 | .110 | .041 | .038 | .036 | |
| 3.0 | .371 | .326 | .289 | .318 | .281 | .251 | .219 | .195 | .176 | .126 | .114 | .104 | .041 | .037 | .034 | |
| 4.0 | .364 | .313 | .274 | .312 | .270 | .238 | .215 | .188 | .168 | .124 | .110 | .099 | .040 | .036 | .033 | |
| 5.0 | .357 | .303 | .263 | .307 | .262 | .229 | .211 | .183 | .162 | .122 | .108 | .096 | .039 | .035 | .032 | |
| 6.0 | .350 | .295 | .255 | .301 | .256 | .222 | .208 | .179 | .157 | .121 | .105 | .094 | .039 | .034 | .031 | |
| 7.0 | .344 | .289 | .250 | .296 | .250 | .218 | .205 | .175 | .154 | .119 | .103 | .092 | .038 | .034 | .030 | |
| 8.0 | .338 | .283 | .245 | .291 | .246 | .214 | .202 | .172 | .152 | .117 | .102 | .090 | .038 | .033 | .030 | |
| 9.0 | .333 | .278 | .242 | .287 | .242 | .211 | .199 | .170 | .150 | .116 | .100 | .089 | .037 | .033 | .030 | |
| 10.0 | .328 | .274 | .239 | .282 | .238 | .209 | .196 | .168 | .148 | .114 | .099 | .088 | .037 | .033 | .029 | |

Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# UGR Table

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ceiling/cavity | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 |
| walls | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 |
| working plane | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Room dimensions | Viewed crosswise | | | | | Viewed endwise | | | | |
| x = 2H y = 2H | 21.7 | 22.8 | 22.3 | 23.4 | 24.1 | 24.8 | 25.9 | 25.4 | 26.5 | 27.2 |
| 3H | 21.6 | 22.6 | 22.3 | 23.3 | 24.0 | 25.6 | 26.6 | 26.2 | 27.2 | 27.9 |
| 4H | 21.7 | 22.6 | 22.3 | 23.3 | 24.0 | 26.0 | 27.0 | 26.7 | 27.6 | 28.4 |
| 6H | 21.8 | 22.7 | 22.5 | 23.4 | 24.2 | 26.7 | 27.6 | 27.4 | 28.3 | 29.1 |
| 8H | 22.0 | 22.9 | 22.7 | 23.6 | 24.4 | 27.3 | 28.1 | 28.0 | 28.8 | 29.6 |
| 12H | 22.3 | 23.1 | 23.0 | 23.8 | 24.7 | 28.0 | 28.9 | 28.7 | 29.5 | 30.4 |
| 4H 2H | 22.1 | 23.1 | 22.8 | 23.7 | 24.5 | 24.7 | 25.7 | 25.4 | 26.3 | 27.1 |
| 3H | 22.3 | 23.1 | 23.0 | 23.8 | 24.6 | 25.6 | 26.5 | 26.3 | 27.2 | 28.0 |
| 4H | 22.5 | 23.2 | 23.2 | 23.9 | 24.8 | 26.2 | 27.0 | 27.0 | 27.7 | 28.6 |
| 6H | 22.8 | 23.5 | 23.6 | 24.2 | 25.1 | 27.3 | 27.9 | 28.0 | 28.7 | 29.6 |
| 8H | 23.1 | 23.7 | 23.9 | 24.5 | 25.4 | 28.0 | 28.6 | 28.8 | 29.4 | 30.3 |
| 12H | 23.6 | 24.1 | 24.4 | 24.9 | 25.8 | 29.0 | 29.5 | 29.8 | 30.3 | 31.2 |
| 8H 4H | 22.9 | 23.5 | 23.6 | 24.2 | 25.1 | 26.3 | 26.9 | 27.0 | 27.6 | 28.5 |
| 6H | 23.6 | 24.1 | 24.4 | 24.9 | 25.9 | 27.5 | 28.0 | 28.3 | 28.8 | 29.8 |
| 8H | 24.2 | 24.6 | 25.0 | 25.4 | 26.4 | 28.5 | 28.9 | 29.3 | 29.7 | 30.7 |
| 12H | 24.9 | 25.3 | 25.7 | 26.1 | 27.1 | 29.8 | 30.1 | 30.6 | 31.0 | 32.0 |
| 12H 4H | 23.0 | 23.6 | 23.8 | 24.4 | 25.3 | 26.2 | 26.8 | 27.0 | 27.5 | 28.5 |
| 6H | 24.0 | 24.4 | 24.8 | 25.2 | 26.2 | 27.6 | 28.0 | 28.4 | 28.8 | 29.8 |
| 8H | 24.7 | 25.1 | 25.5 | 25.9 | 26.9 | 28.6 | 29.0 | 29.5 | 29.8 | 30.8 |

| Variations with the observer position at spacings: | | |
|---|---|---|
| S = 1.0H | + 0.4 / - 0.5 | + 0.1 / - 0.1 |
| 1.5H | + 0.4 / - 0.5 | + 0.4 / - 0.4 |
| 2.0H | + 0.6 / - 1.3 | + 0.5 / - 0.7 |

CIE Pub.117 Corrected 1436 lm Total Lamp Luminous Flux.(8log(F/F0) = 1.3)

Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# UTILIZATION FACTORS TABLE

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |

| REFLECTANCE | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ceiling | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 | 0.5 | 0.5 | 0.5 | 0 |
| Walls | 0.7 | 0.5 | 0.3 | 0.7 | 0.5 | 0.3 | 0.7 | 0.5 | 0.3 | 0 |
| Working plane | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0 |
| ROOM INDEX | UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5 | | | | | | | | | |
| k = 0.60 | 51 | 40 | 34 | 50 | 39 | 33 | 47 | 38 | 32 | 26 |
| 0.80 | 61 | 50 | 43 | 59 | 49 | 42 | 56 | 47 | 41 | 33 |
| 1.00 | 69 | 58 | 51 | 67 | 57 | 50 | 62 | 56 | 48 | 39 |
| 1.25 | 76 | 65 | 58 | 73 | 64 | 57 | 68 | 60 | 54 | 44 |
| 1.50 | 81 | 71 | 64 | 78 | 69 | 62 | 72 | 64 | 59 | 48 |
| 2.00 | 88 | 79 | 72 | 84 | 76 | 70 | 77 | 71 | 66 | 53 |
| 2.50 | 91 | 83 | 77 | 87 | 80 | 74 | 80 | 74 | 69 | 55 |
| 3.00 | 95 | 87 | 81 | 90 | 84 | 78 | 82 | 77 | 73 | 58 |
| 4.00 | 99 | 92 | 87 | 94 | 88 | 84 | 85 | 81 | 77 | 61 |
| 5.00 | 101 | 95 | 91 | 96 | 91 | 87 | 87 | 83 | 80 | 62 |
| ROOM INDEX | UF(total) | | | | | | | | | Direct |
| According to DIN EN 13032-2 2004 | | | | Suspended | | | | | SHRNOM = 1.25 | |

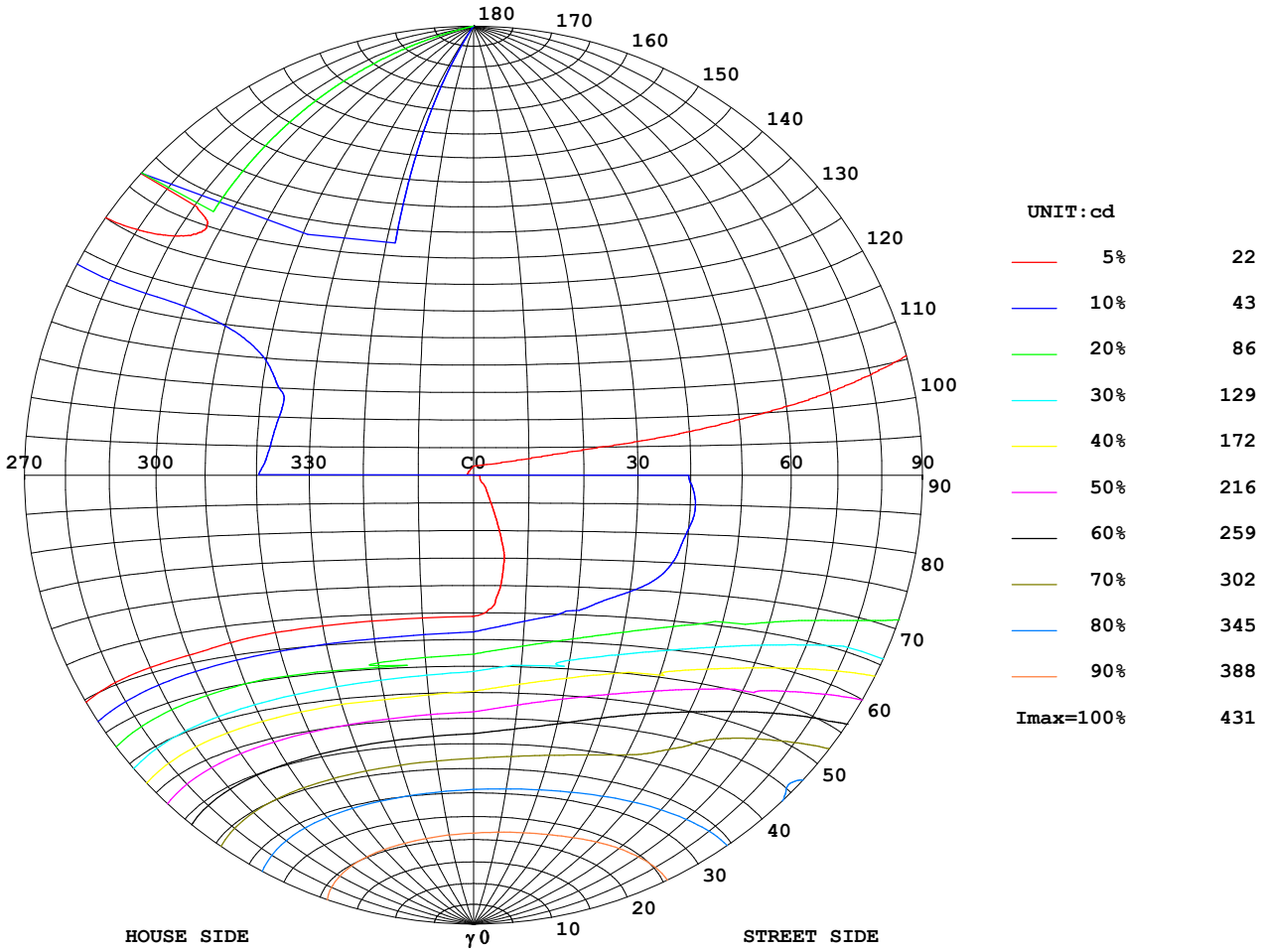
Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# ISOCANDELA DIAGRAM

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |



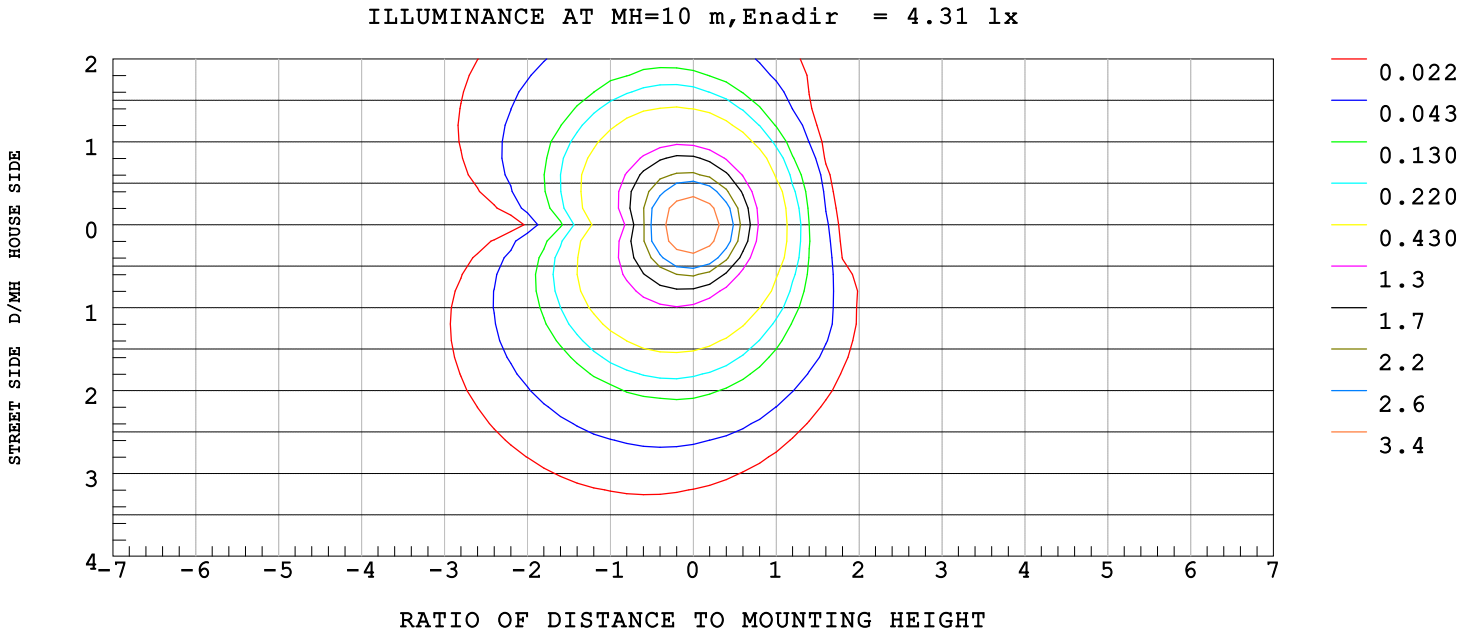

Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

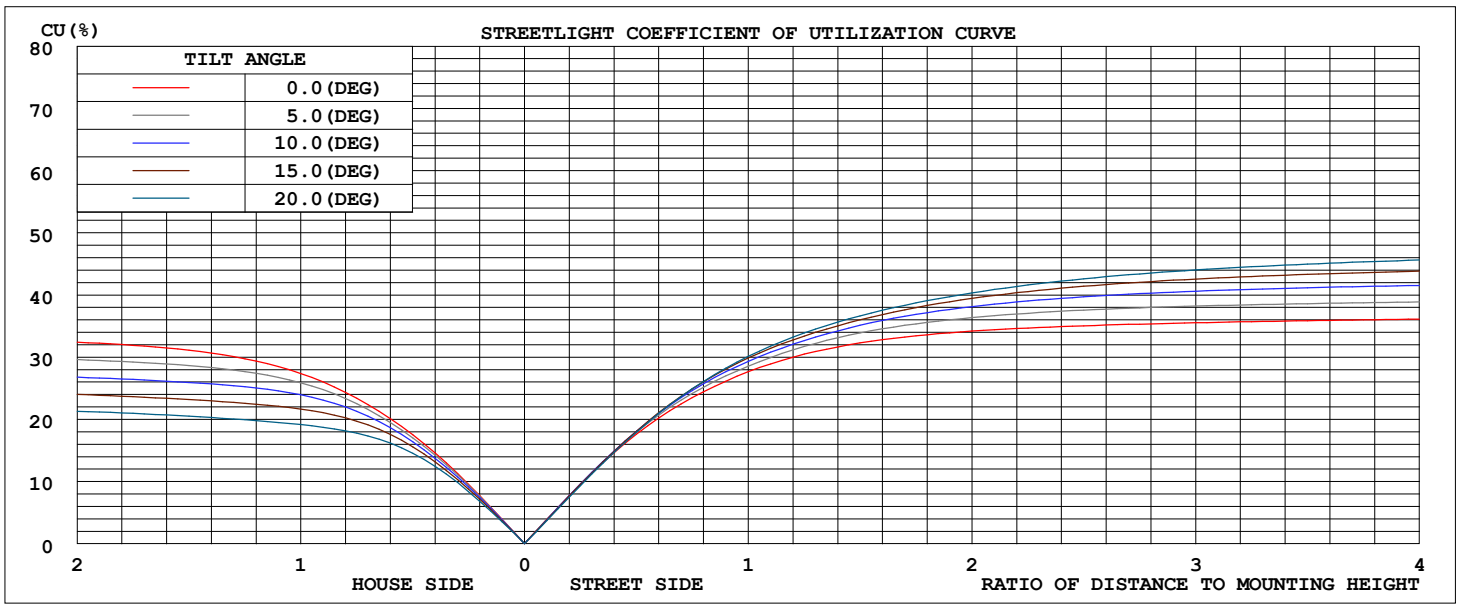
Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# ISOLUX DIAGRAM

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |



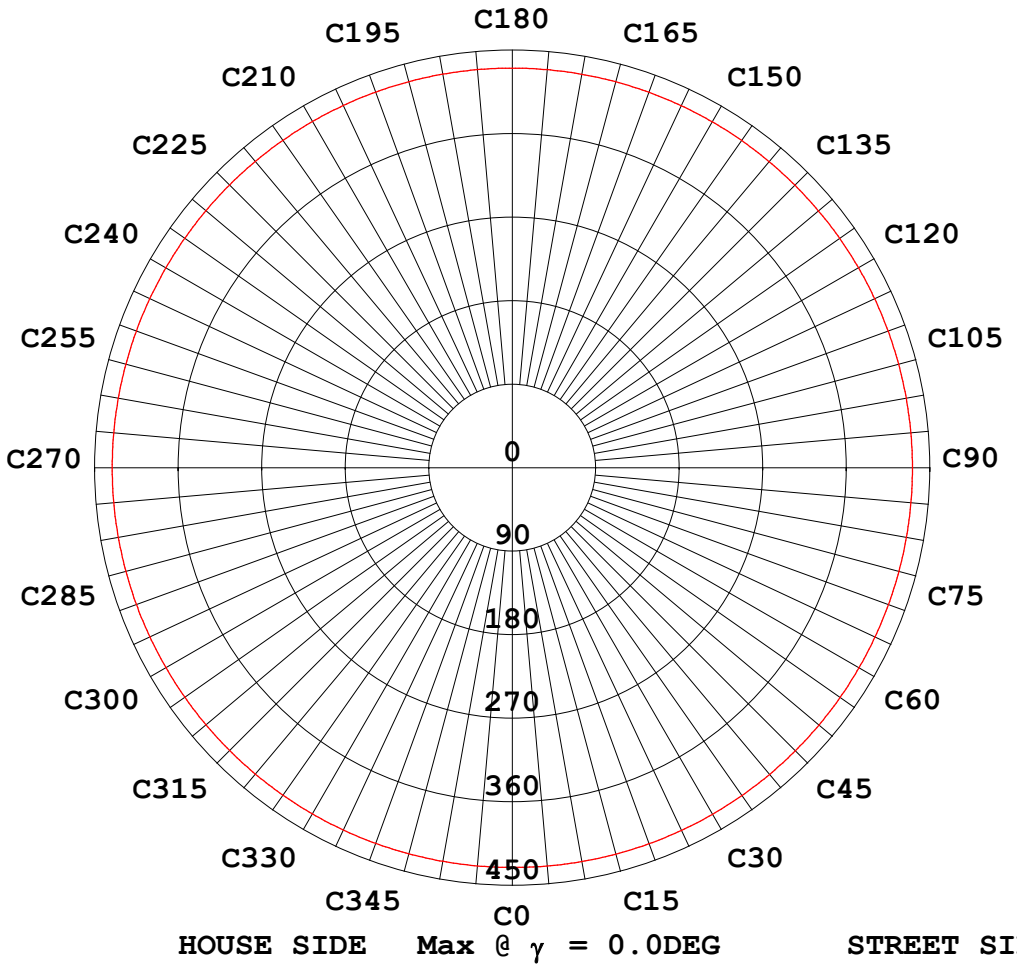

Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# ISOCANDELA DIAGRAM

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |




Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:6.370 m
Remarks: 24V-480D-2700K-19.2W/IP67

# LUMINOUS DISTRIBUTION INTENSITY DATA

Report number:

| | | | |
|---|---|---|---|
| MANUFACTURER: HAVIT COMMERCIAL | | | |
| Address: | | | |
| NAME: HCP3965192 | | TYPE: | WEIGHT: |
| SPECIFICATION: | CCT(K): 1000980 | DIMENSION: | SERIAL No.: |

UNIT: cd

| γ (DEG) \ C(DEG) | 0 | 90 | 180 | 270 |
|---|---|---|---|---|
| 0.0 | 431 | 431 | 431 | 431 |
| 5.0 | 429 | 430 | 428 | 430 |
| 10.0 | 423 | 424 | 418 | 425 |
| 15.0 | 412 | 415 | 403 | 414 |
| 20.0 | 394 | 402 | 384 | 398 |
| 25.0 | 373 | 391 | 362 | 378 |
| 30.0 | 349 | 365 | 333 | 361 |
| 35.0 | 318 | 343 | 296 | 368 |
| 40.0 | 277 | 338 | 248 | 369 |
| 45.0 | 229 | 348 | 193 | 332 |
| 50.0 | 176 | 325 | 120 | 276 |
| 55.0 | 119 | 275 | 61.3 | 210 |
| 60.0 | 57.6 | 216 | 19.8 | 143 |
| 65.0 | 18.3 | 154 | 9.53 | 88.6 |
| 70.0 | 17.2 | 92.6 | 10.1 | 71.7 |
| 75.0 | 17.6 | 78.7 | 11.1 | 67.7 |
| 80.0 | 18.6 | 74.3 | 12.4 | 65.3 |
| 85.0 | 19.7 | 71.0 | 14.4 | 59.6 |
| 90.0 | 20.8 | 71.3 | 17.1 | 58.3 |
| 95.0 | 22.5 | 71.9 | 18.5 | 145 |
| 100.0 | 24.1 | 71.4 | 19.9 | 146 |
| 105.0 | 25.1 | 69.3 | 21.3 | 139 |
| 110.0 | 25.9 | 64.1 | 22.9 | 135 |
| 115.0 | 26.4 | 56.0 | 24.2 | 134 |
| 120.0 | 26.7 | 28.5 | 25.1 | 119 |
| 125.0 | 26.8 | 21.6 | 25.6 | 110 |
| 130.0 | 26.5 | 19.5 | 26.5 | 110 |
| 135.0 | 26.4 | 110 | 26.4 | 110 |
| 140.0 | 26.4 | 110 | 26.4 | 110 |
| 145.0 | 26.3 | 110 | 26.3 | 110 |
| 150.0 | 26.3 | 110 | 26.3 | 110 |
| 155.0 | 26.3 | 110 | 26.3 | 110 |
| 160.0 | 26.3 | 110 | 26.3 | 110 |
| 165.0 | 26.3 | 110 | 26.3 | 110 |
| 170.0 | 26.2 | 110 | 26.2 | 110 |
| 175.0 | 26.2 | 110 | 26.2 | 110 |
| 180.0 | 26.2 | 110 | 26.2 | 110 |

Test System:HOPOO HP880
Temperature:25.3DEG
Operators:
Test Date:2023.04.12

Test Set: 6.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
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