# CERTIFICATE

## of Conformity
## Low Voltage Directive (EU) 2014/35

| | |
|---|---|
| **Registration No.:** | AN 50608981 0001 |
| **Report No.:** | CN22LPF5 002 |
| **Holder:** | SpolarPV Technology Co., Ltd.<br>Maoshan Road 39,<br>Gaochun Economic Development Zone<br>Nanjing,<br>211300 Jiangsu<br>P.R. China |
| **Product:** | PV Module |

**Type designation listed on the next page**

This certificate of conformity is based on an evaluation of a sample of the above-mentioned product. Technical Report and documentation are at the License Holder's disposal. This is to certify that the tested sample is in conformity with Annex I of Council Directive (EU) 2014/35, referred to as the Low Voltage Directive. This certificate does not imply assessment of the series-production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to Annex IV of the Directive.

**Certification Body**

**Date:** 2023-11-15

Angela Yao

TÜV Rheinland LGA Products GmbH
TÜVRheinland
Zertifizierungsstelle



**TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg**

CE **The CE marking may be used if all relevant and effective EC Directives/Regulations are complied with.** CE

# C E R T I F I C A T E

## of Conformity
## Low Voltage Directive (EU) 2014/35

**Registration No.:** AN 50608981 0001

**Product:** PV Module

**Identification:** Type Designation

Max. system voltage: up to 1500 VDC (Voc at STC):
With ½ cut of 158 mono c-Si cell:
SPVxxx-PM3-144BD
(xxx=390-415, in steps of 5, 144 cells)
SPVxxx-PM3-120BD
(xxx=325-345, in steps of 5, 120 cells)
With ½ cut of 166 mono c-Si cell:
SPVxxx-PM6-144BD
(xxx=420-460, in steps of 5, 144 cells)
SPVxxx-PM6-132BD
(xxx=385-420, in steps of 5, 132 cells)
SPVxxx-PM6-120BD
(xxx=350-385, in steps of 5, 120 cells)
SPVxxx-PM6-108BD
(xxx=315-345, in steps of 5, 108 cells)
SPVxxx-PM6-96BD
(xxx=280-305, in steps of 5, 96 cells)
SPVxxx-PM6-72BD
(xxx=210-230, in steps of 5, 72 cells)
With ½ cut of 182 mono c-Si cell:
SPVxxx-PM10-156BD
(xxx=565-600, in steps of 5, 156 cells)
SPVxxx-PM10-144BD
(xxx=520-555, in steps of 5, 144 cells)
SPVxxx-PM10-132BD
(xxx=480-505, in steps of 5, 132 cells)
SPVxxx-PM10-120BD
(xxx=435-460, in steps of 5, 120 cells)
SPVxxx-PM10-108BD
(xxx=390-415, in steps of 5, 108 cells)
SPVxxx-PM10-96BD
(xxx=350-370, in steps of 5, 96 cells)
SPVxxx-PM10-72BD
(xxx=260-275, in steps of 5, 72 cells)
With ½ cut of 182 topcon c-Si cell:

TÜV Rheinland LGA Products GmbH TÜVRheinland Zertifizierungsstelle



**TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg**

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Precisely Right.

# C E R T I F I C A T E

## of Conformity
## Low Voltage Directive (EU) 2014/35

**Registration No.:** AN 50608981 0001

**Product:** PV Module

**Identification:** Type Designation

SPVxxx-TM10-144BD
(xxx=555-585, in steps of 5, 144 cells)
SPVxxx-TM10-120BD
(xxx=460-490, in steps of 5, 120 cells)
SPVxxx-TM10-108BD
(xxx=410-440, in steps of 5, 108 cells)
With ½ cut of 210 mono c-Si cell:
SPVxxx-PG12-132BD
(xxx=640-675, in steps of 5, 132 cells)
SPVxxx-PG12-120BD
(xxx=580-610, in steps of 5, 120 cells)
SPVxxx-PG12-110BD
(xxx=530-555, in steps of 5, 110 cells)
With ⅓ cut of 210 mono c-Si cell:
SPVxxx-PG12-T150BD
(xxx=480-520, in steps of 5, 150 cells)
SPVxxx-PG12-T120BD
(xxx=385-415, in steps of 5, 120 cells)
With ½ cut of 210 topcon c-Si cell:
SPVxxx-TG12-T132BD
(xxx=660-680, in steps of 5, 132 cells)
SPVxxx-TG12-T120BD
(xxx=600-620, in steps of 5, 120 cells)
SPVxxx-TG12-T110BD
(xxx=550-570, in steps of 5, 110 cells)

xxx represents output power in Wp

Remarks:
Valid in conjunction with TÜV Rheinland certificate PV 50591291 0001-0003.

TÜV Rheinland LGA Products GmbH Zertifizierungsstelle TÜVRheinland



**TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg**

CE **The CE marking may be used if all relevant and effective EC Directives/Regulations are complied with.** CE

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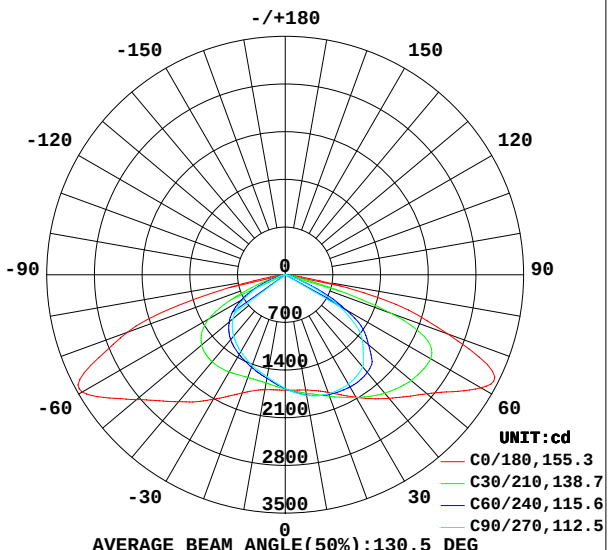
# STREETLIGHT PHOTOMETRIC TEST REPORT

| | | |
|---|---|---|
| Test:U:23.06V I:1.750A P:40.36W PF:1.000 Freq:49.99Hz Lamp Flux:7333.05x1 lm | | |
| NAME: 40W Street Light | TYPE:LED | WEIGHT: |
| SPEC.:40W Street Light | DIM.: | SERIAL No.:1 |
| MFR.: HeiSolar Technology Limited | SUR.:50*50 | Shielding Angle: |

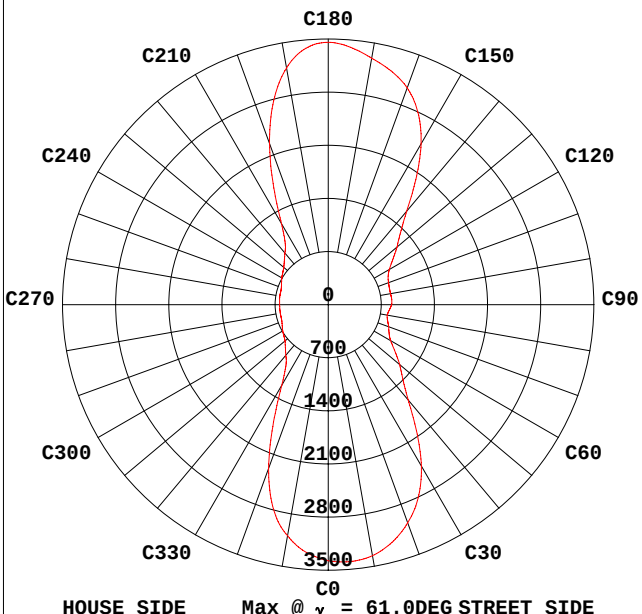
| DATA OF LAMP | | PHOTOMETRIC DATA Eff: 181.69 lm/W | | | |
|---|---|---|---|---|---|
| MODEL | FC-40 | Imax(cd) | 3458 | η street_up(%) | 0.0 |
| NOMINAL POWER(W) | 40 | LOR(%) | 100.0 | η street_down(%) | 57.3 |
| RATED VOLTAGE(V) | 23 | TOTAL FLUX(lm) | 7333 | η house_up(%) | 0.0 |
| NOMINAL FLUX(lm) | 7333.05 | MAXIMUM @(C,γ ) | 180,61.0 | η house_down(%) | 42.7 |
| LAMPS INSIDE | 1 | η up(%) | 0.0 | 76 FLASHAREA(m2) | 0.00100 |
| TEST VOLTAGE(V) | 23 | η down(%) | 100.0 | SLI | 20.621 |

INTENSITY DISTRIBUTION DIAGRAM
IN C PLANS




AVERAGE BEAM ANGLE(50%):130.5 DEG

MAX INTENSITY CONE SURFACE
DISTRIBUTION DIAGRAM

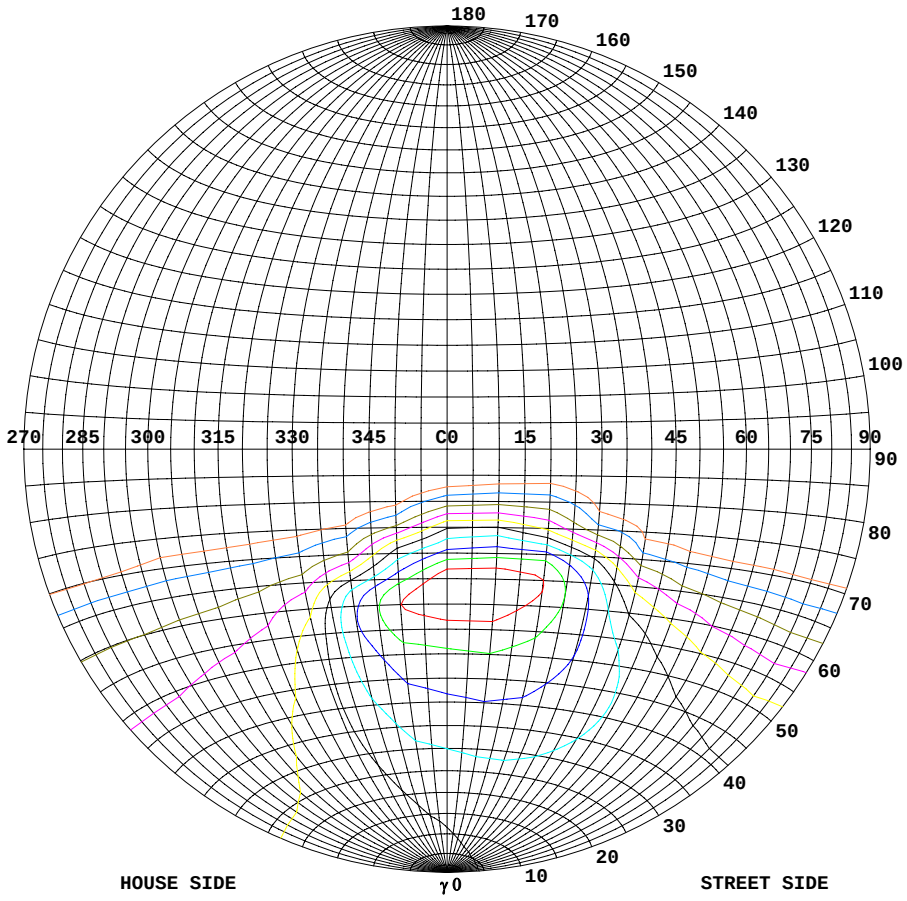



HOUSE SIDE Max @ γ = 61.0DEG STREET SIDE

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:FKY
Test Date:2023-12-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:10.783m [K=1.0000]
Remarks:

# STREETLIGHT ISOCANDELA DIAGRAM




Classification:

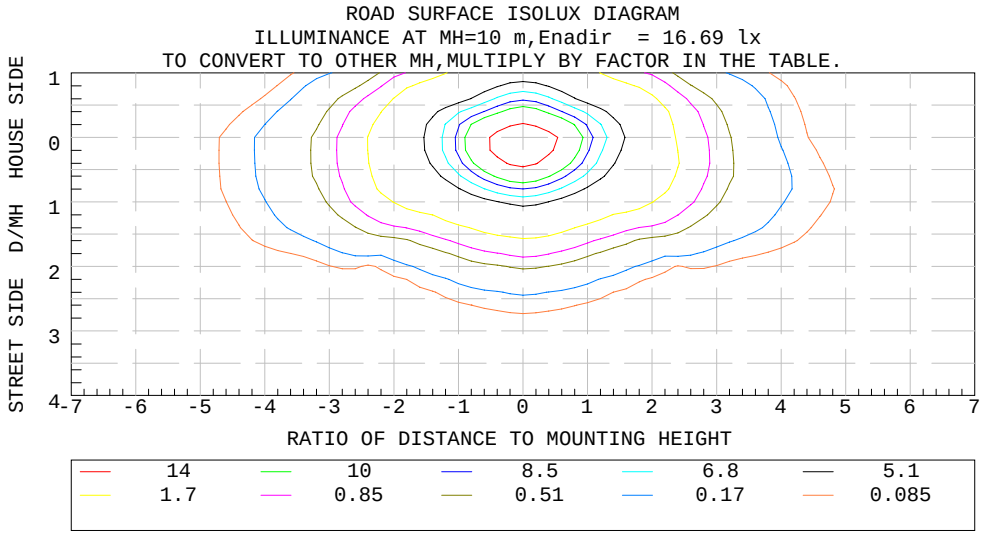
IES:Type II - Short
CIE:Narrow - Intermediate
IES:Semi cut-off
CIE:Non-cut-off
Max.At80:105.0cd/klm
Max.At90:1.593cd/klm
Max.80-90:105.0cd/klm
NRB 5101:Semi limited[21.8%]

| ISOCANDELA DIAGRAM | |
|---|---|
| UNIT | cd |
| Imax=100% | 3458 |
| 90% | 3112 |
| 80% | 2766 |
| 70% | 2420 |
| 60% | 2075 |
| 50% | 1729 |
| 40% | 1383 |
| 30% | 1037 |
| 20% | 692 |
| 10% | 346 |
| 5% | 173 |

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:FKY
Test Date:2023-12-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:10.783m [K=1.0000]
Remarks:

# COEFFICIENT OF UTILIZATION CURVE AND ISOLUX DIAGRAM


According to LB/T001-2008:
U = Emin/Eavg = 0.615
Eavg = 18.91 lx

| HEIGHT | FACTOR |
|---|---|
| 5 m | 4.000 |
| 6 m | 2.778 |
| 7 m | 2.041 |
| 8 m | 1.563 |
| 9 m | 1.235 |
| 10 m | 1.000 |
| 11 m | 0.826 |
| 12 m | 0.694 |
| 13 m | 0.592 |
| 14 m | 0.510 |
| 15 m | 0.444 |
| 16 m | 0.391 |

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:FKY
Test Date:2023-12-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:10.783m [K=1.0000]
Remarks:

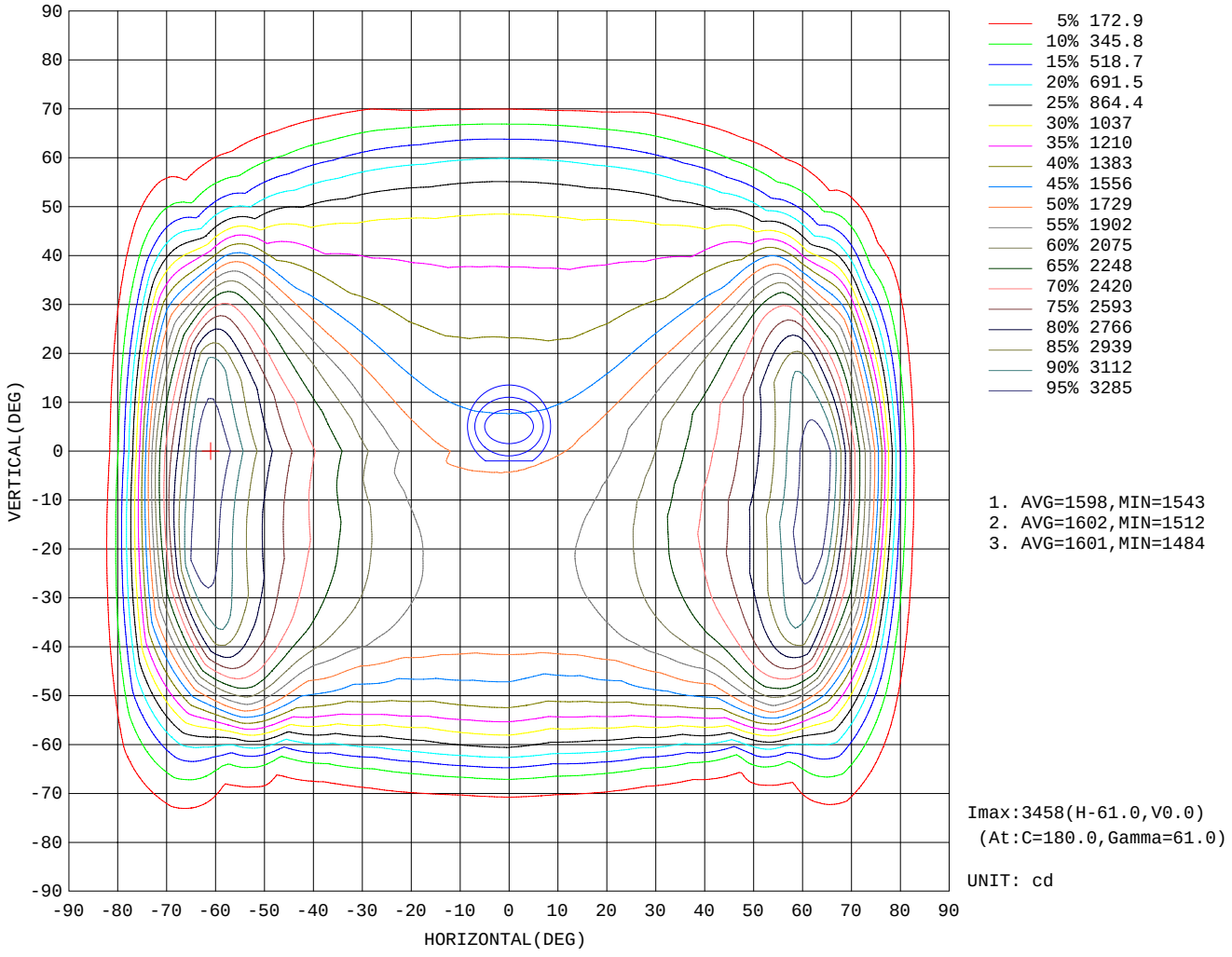
# ZONAL FLUX DIAGRAM

| γ | C0 | C45 | C90 | C135 | C180 | C225 | C270 | C315 | γ | Φ zone | Φ total | %lum,lamp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 1719 | 1781 | 1797 | 1766 | 1714 | 1574 | 1524 | 1579 | 0- 10 | 160.1 | 160.1 | 2.18,2.18 |
| 20 | 1838 | 1888 | 1859 | 1856 | 1847 | 1505 | 1418 | 1507 | 10- 20 | 480.5 | 640.6 | 8.74,8.74 |
| 30 | 2077 | 1985 | 1855 | 1939 | 2111 | 1451 | 1305 | 1450 | 20- 30 | 805.7 | 1446 | 19.7,19.7 |
| 40 | 2369 | 2056 | 1769 | 2005 | 2434 | 1377 | 1176 | 1366 | 30- 40 | 1129 | 2575 | 35.1,35.1 |
| 50 | 2717 | 1987 | 1475 | 1935 | 2853 | 1214 | 1003 | 1200 | 40- 50 | 1401 | 3976 | 54.2,54.2 |
| 60 | 3318 | 1513 | 909.3 | 1471 | 3442 | 876.4 | 683.2 | 859.4 | 50- 60 | 1551 | 5527 | 75.4,75.4 |
| 70 | 2537 | 394.7 | 197.7 | 408.6 | 2466 | 321.5 | 168.7 | 283.6 | 60- 70 | 1295 | 6823 | 93,93 |
| 80 | 517.8 | 67.64 | 41.91 | 71.57 | 332.3 | 35.16 | 21.51 | 29.28 | 70- 80 | 467.4 | 7290 | 99.4,99.4 |
| 90 | 4.691 | 1.712 | 1.626 | 2.652 | 10.83 | 4.391 | 1.439 | 4.085 | 80- 90 | 42.69 | 7333 | 100,100 |
| 100 | | | | | | | | | 90-100 | | | |
| 110 | | | | | | | | | 100-110 | | | |
| 120 | | | | | | | | | 110-120 | | | |
| 130 | | | | | | | | | 120-130 | | | |
| 140 | | | | | | | | | 130-140 | | | |
| 150 | | | | | | | | | 140-150 | | | |
| 160 | | | | | | | | | 150-160 | | | |
| 170 | | | | | | | | | 160-170 | | | |
| 180 | | | | | | | | | 170-180 | | | |
| DEG | LUMINOUS INTENSITY:cd | | | | | | | | | UNIT:lm | | |

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:FKY
Test Date:2023-12-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:10.783m [K=1.0000]
Remarks:

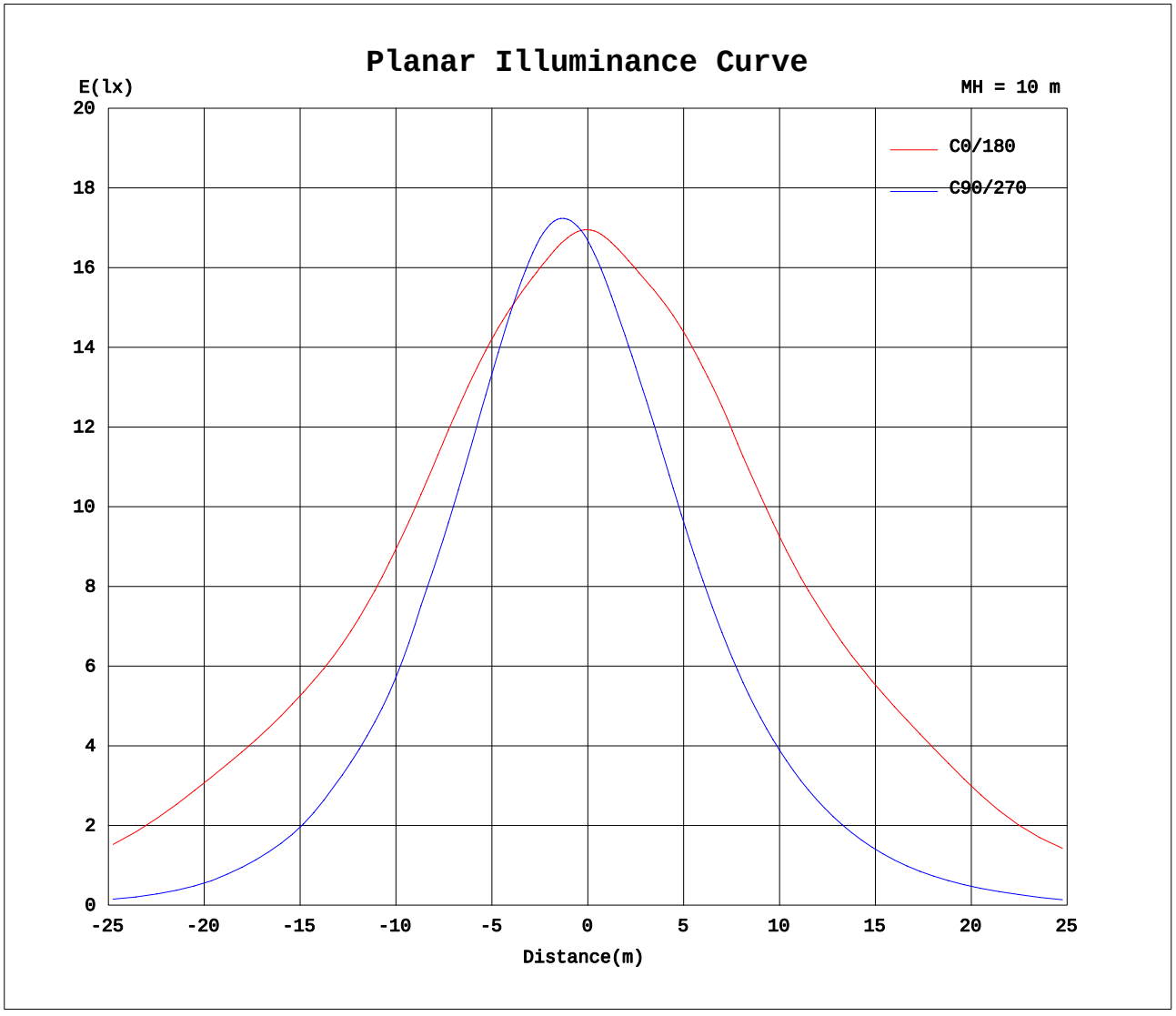
# ISOCANDELA DIAGRAM




C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:FKY
Test Date:2023-12-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:10.783m [K=1.0000]
Remarks:

# Planar Illuminance Curve



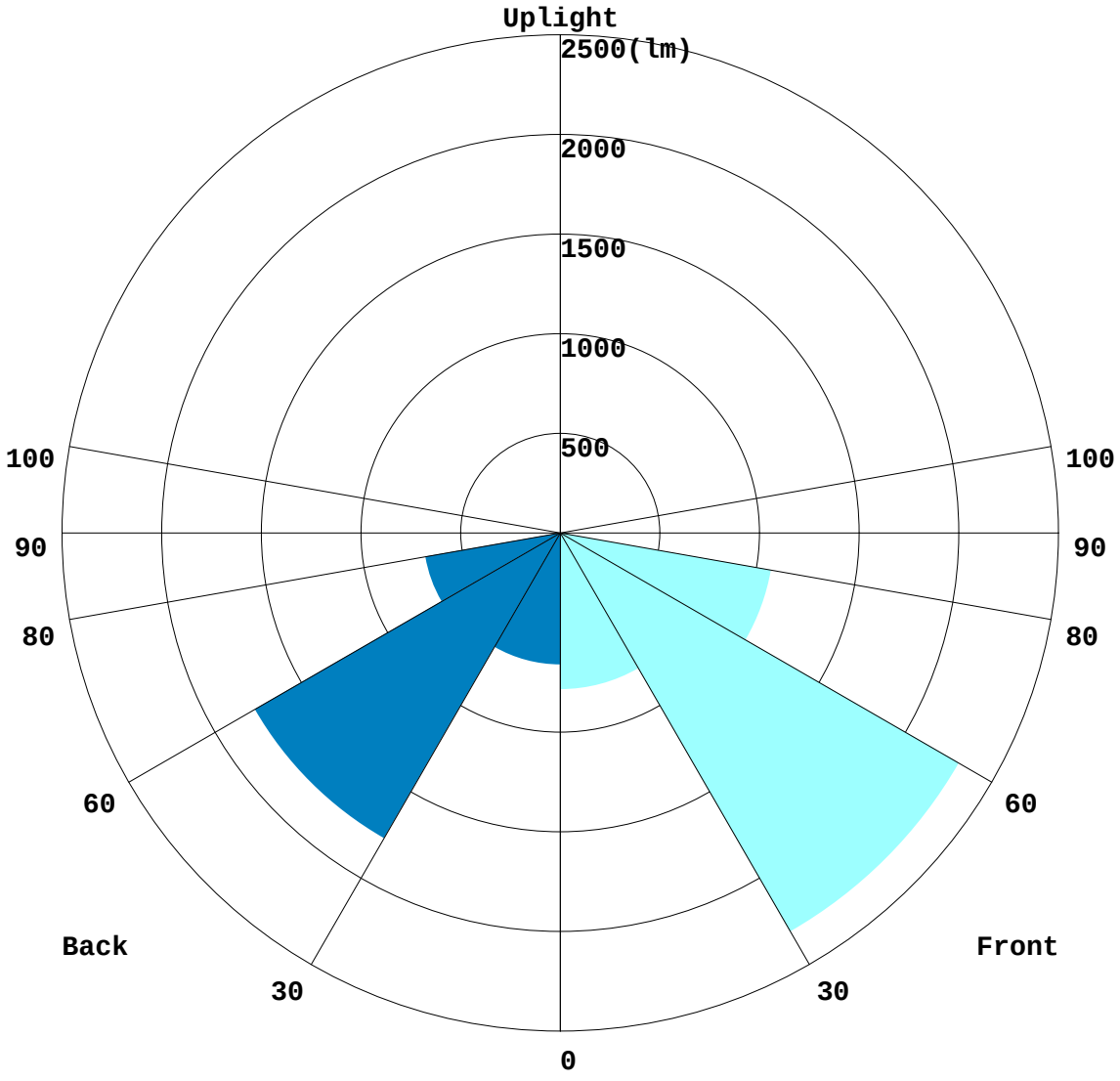

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:FKY
Test Date:2023-12-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:10.783m [K=1.0000]
Remarks:

# LCS REPORT

| | | |
|---|---|---|
| Test:U:23.06V I:1.750A P:40.36W PF:1.000 Freq:49.99Hz Lamp Flux:7333.05x1 lm | | |
| NAME: 40W Street Light | TYPE:LED | WEIGHT: |
| SPEC.:40W Street Light | DIM.: | SERIAL No.:1 |
| MFR.: HeiSolar Technology Limited | SUR.:50*50 | Shielding Angle: |

## LUMINAIRE CLASSIFICATION SYSTEM(LCS) GRAPH




C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:FKY
Test Date:2023-12-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:10.783m [K=1.0000]
Remarks:

# BUG REPORT

| | | |
|---|---|---|
| Test:U:23.06V I:1.750A P:40.36W PF:1.000 Freq:49.99Hz Lamp Flux:7333.05x1 lm | | |
| NAME: 40W Street Light | TYPE:LED | WEIGHT: |
| SPEC.:40W Street Light | DIM.: | SERIAL No.:1 |
| MFR.: HeiSolar Technology Limited | SUR.:50*50 | Shielding Angle: |

**IESNA Luminaire Flux Distribution Table:**

| Zone | Lumens | Luminaire % |
|---|---|---|
| FL - Front-Low(0-30) | 785 | 10.7 |
| FM - Front-Medium(30-60) | 2311 | 31.5 |
| FH - Front-High(60-80) | 1074.9 | 14.7 |
| FVH - Front-Very High(80-90) | 33.654 | 0.5 |
| Total Forward Light | 4204.5 | 57.3 |
| BL - Back-Low(0-30) | 661.27 | 9.0 |
| BM - Back-Medium(30-60) | 1770.3 | 24.1 |
| BH - Back-High(60-80) | 687.97 | 9.4 |
| BVH - Back-Very High(80-90) | 9.04 | 0.1 |
| Total Back Light | 3128.5 | 42.7 |
| UL - Uplight-Low(90-100) | 0 | 0.0 |
| UH - Uplight-High(100-180) | 0 | 0.0 |
| Total Up Light | 0 | 0.0 |

| BUG(Back,Up,Glare) Rating | B2-U0-G2 |
|---|---|

| Zone | Downward Lumens | Upward Lumens | Total Lumens |
|---|---|---|---|
| House Side | 3128.5 | 0 | 3128.5 |
| Street Side | 4204.5 | 0 | 4204.5 |

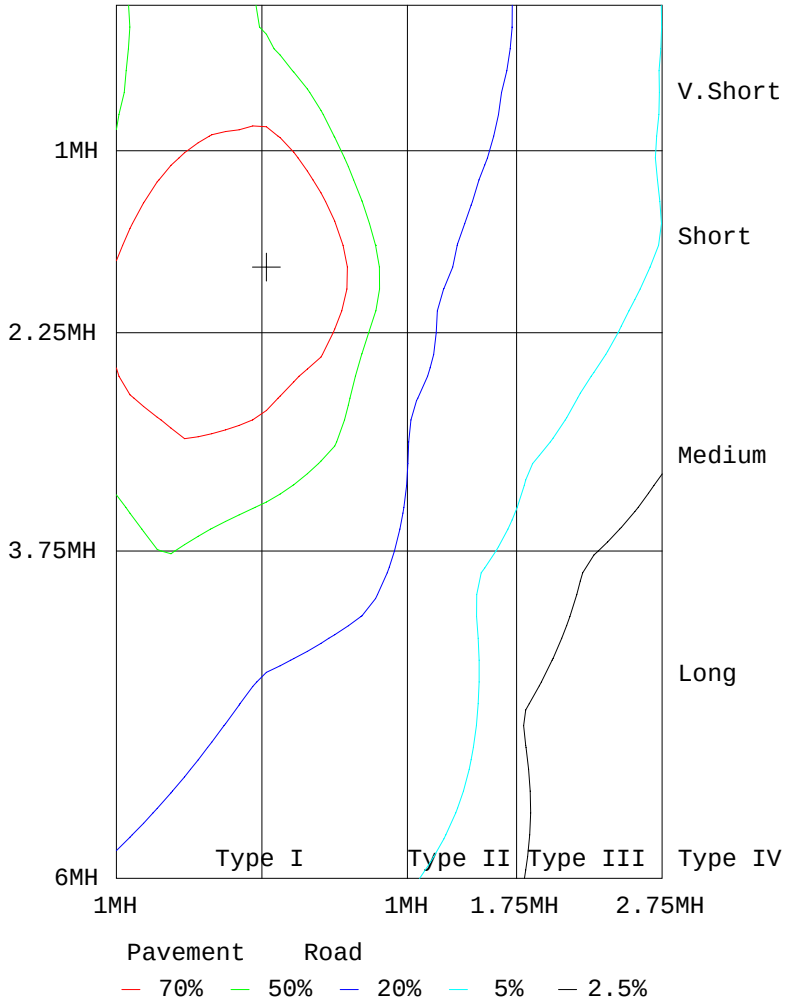
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:FKY
Test Date:2023-12-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:10.783m [K=1.0000]
Remarks:

# ROAD ISOCANDELA REPORT

| | | |
|---|---|---|
| Test:U:23.06V I:1.750A P:40.36W PF:1.000 Freq:49.99Hz Lamp Flux:7333.05x1 lm | | |
| NAME: 40W Street Light | TYPE:LED | WEIGHT: |
| SPEC.:40W Street Light | DIM.: | SERIAL No.:1 |
| MFR.: HeiSolar Technology Limited | SUR.:50*50 | Shielding Angle: |

ROAD SURFACE ISOCANDELA DIAGRAM




C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:FKY
Test Date:2023-12-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:10.783m [K=1.0000]
Remarks:

# LUMINOUS DISTRIBUTION INTENSITY DATA

Table--1 UNIT: cd

| C(DEG) / γ (DEG) | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1695 | 1690 | 1685 | 1680 | 1678 | 1674 | 1673 | 1670 | 1671 | 1668 | 1670 | 1668 | 1671 | 1671 | 1674 | 1674 | 1677 | 1679 | 1695 |
| 5 | 1701 | 1707 | 1715 | 1720 | 1727 | 1730 | 1735 | 1736 | 1739 | 1737 | 1737 | 1732 | 1729 | 1721 | 1715 | 1706 | 1698 | 1688 | 1697 |
| 10 | 1719 | 1737 | 1754 | 1766 | 1778 | 1785 | 1793 | 1795 | 1799 | 1797 | 1796 | 1790 | 1784 | 1772 | 1761 | 1744 | 1728 | 1707 | 1714 |
| 15 | 1762 | 1789 | 1811 | 1824 | 1833 | 1835 | 1838 | 1839 | 1840 | 1838 | 1836 | 1831 | 1826 | 1817 | 1808 | 1792 | 1774 | 1746 | 1761 |
| 20 | 1838 | 1873 | 1897 | 1900 | 1895 | 1881 | 1871 | 1864 | 1862 | 1859 | 1857 | 1853 | 1853 | 1854 | 1857 | 1854 | 1846 | 1820 | 1847 |
| 25 | 1947 | 1987 | 2003 | 1988 | 1958 | 1921 | 1892 | 1874 | 1868 | 1864 | 1861 | 1861 | 1868 | 1884 | 1910 | 1933 | 1947 | 1929 | 1967 |
| 30 | 2077 | 2121 | 2125 | 2081 | 2018 | 1953 | 1902 | 1872 | 1858 | 1855 | 1851 | 1854 | 1874 | 1912 | 1967 | 2022 | 2065 | 2064 | 2111 |
| 35 | 2222 | 2266 | 2254 | 2177 | 2078 | 1978 | 1899 | 1849 | 1826 | 1822 | 1819 | 1831 | 1867 | 1936 | 2024 | 2113 | 2196 | 2218 | 2277 |
| 40 | 2369 | 2413 | 2381 | 2270 | 2127 | 1986 | 1873 | 1803 | 1770 | 1769 | 1768 | 1790 | 1845 | 1940 | 2071 | 2210 | 2327 | 2371 | 2434 |
| 45 | 2529 | 2570 | 2508 | 2348 | 2144 | 1959 | 1806 | 1661 | 1592 | 1618 | 1622 | 1673 | 1782 | 1916 | 2089 | 2289 | 2453 | 2529 | 2617 |
| 50 | 2717 | 2758 | 2649 | 2413 | 2122 | 1852 | 1595 | 1486 | 1438 | 1475 | 1477 | 1496 | 1577 | 1800 | 2071 | 2367 | 2597 | 2705 | 2853 |
| 55 | 2995 | 3011 | 2811 | 2453 | 1994 | 1626 | 1396 | 1284 | 1188 | 1235 | 1237 | 1281 | 1382 | 1561 | 1950 | 2435 | 2780 | 2948 | 3155 |
| 60 | 3318 | 3310 | 3022 | 2466 | 1704 | 1322 | 1030 | 918 | 859 | 909 | 906 | 915 | 1007 | 1272 | 1671 | 2464 | 3006 | 3243 | 3442 |
| 65 | 3358 | 3371 | 3114 | 2315 | 1258 | 796 | 608 | 522 | 468 | 501 | 496 | 516 | 602 | 784 | 1239 | 2313 | 3119 | 3416 | 3153 |
| 70 | 2537 | 2627 | 2540 | 1651 | 510 | 279 | 216 | 203 | 193 | 198 | 197 | 207 | 225 | 296 | 521 | 1626 | 2474 | 2756 | 2466 |
| 75 | 1684 | 1749 | 1325 | 497 | 144 | 120 | 108 | 97.8 | 88.6 | 93.5 | 90.4 | 98.7 | 109 | 124 | 152 | 503 | 1380 | 1790 | 1352 |
| 80 | 518 | 580 | 494 | 127 | 73.7 | 61.6 | 52.6 | 45.3 | 40.2 | 41.9 | 39.7 | 45.0 | 53.3 | 64.7 | 78.4 | 129 | 527 | 770 | 332 |
| 85 | 54.9 | 79.5 | 87.8 | 34.5 | 22.5 | 20.1 | 16.4 | 13.9 | 11.0 | 11.1 | 9.90 | 12.9 | 16.5 | 21.3 | 24.9 | 37.2 | 108 | 138 | 16.1 |
| 90 | 4.69 | 4.12 | 3.11 | 2.16 | 1.69 | 1.73 | 1.93 | 1.93 | 1.78 | 1.63 | 1.61 | 1.90 | 2.34 | 2.51 | 2.79 | 3.10 | 3.72 | 3.96 | 10.8 |

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:FKY
Test Date:2023-12-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:10.783m [K=1.0000]
Remarks:

# LUMINOUS DISTRIBUTION INTENSITY DATA

Table--2 UNIT: cd

| C(DEG) / γ (DEG) | 190 | 200 | 210 | 220 | 230 | 240 | 250 | 260 | 270 | 280 | 290 | 300 | 310 | 320 | 330 | 340 | 350 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1690 | 1685 | 1680 | 1678 | 1674 | 1673 | 1670 | 1671 | 1668 | 1670 | 1668 | 1671 | 1671 | 1674 | 1674 | 1677 | 1679 | | |
| 5 | 1678 | 1661 | 1643 | 1629 | 1615 | 1608 | 1599 | 1597 | 1593 | 1597 | 1599 | 1609 | 1618 | 1632 | 1646 | 1662 | 1677 | | |
| 10 | 1682 | 1648 | 1614 | 1586 | 1561 | 1545 | 1533 | 1528 | 1524 | 1528 | 1532 | 1547 | 1565 | 1593 | 1624 | 1658 | 1691 | | |
| 15 | 1713 | 1657 | 1602 | 1554 | 1517 | 1495 | 1479 | 1472 | 1468 | 1470 | 1476 | 1492 | 1518 | 1561 | 1616 | 1676 | 1734 | | |
| 20 | 1780 | 1693 | 1605 | 1532 | 1479 | 1446 | 1429 | 1423 | 1418 | 1419 | 1423 | 1441 | 1476 | 1538 | 1623 | 1717 | 1807 | | |
| 25 | 1878 | 1752 | 1622 | 1515 | 1439 | 1400 | 1375 | 1367 | 1362 | 1364 | 1370 | 1394 | 1438 | 1518 | 1637 | 1777 | 1906 | | |
| 30 | 2000 | 1832 | 1647 | 1495 | 1406 | 1353 | 1321 | 1310 | 1305 | 1307 | 1315 | 1347 | 1404 | 1496 | 1657 | 1857 | 2027 | | |
| 35 | 2144 | 1927 | 1665 | 1475 | 1367 | 1304 | 1266 | 1251 | 1244 | 1247 | 1258 | 1296 | 1361 | 1471 | 1672 | 1950 | 2161 | | |
| 40 | 2282 | 2019 | 1670 | 1436 | 1318 | 1247 | 1200 | 1183 | 1176 | 1181 | 1195 | 1239 | 1307 | 1426 | 1673 | 2047 | 2298 | | |
| 45 | 2446 | 2108 | 1651 | 1375 | 1246 | 1172 | 1120 | 1104 | 1101 | 1103 | 1116 | 1165 | 1233 | 1357 | 1655 | 2152 | 2453 | | |
| 50 | 2640 | 2199 | 1605 | 1281 | 1147 | 1073 | 1022 | 1008 | 1003 | 1002 | 1015 | 1067 | 1136 | 1263 | 1606 | 2258 | 2641 | | |
| 55 | 2886 | 2284 | 1498 | 1144 | 1006 | 939 | 885 | 873 | 867 | 869 | 879 | 930 | 995 | 1130 | 1500 | 2376 | 2918 | | |
| 60 | 3139 | 2288 | 1294 | 942 | 811 | 751 | 701 | 689 | 683 | 684 | 694 | 739 | 792 | 927 | 1295 | 2347 | 3108 | | |
| 65 | 2910 | 1906 | 900 | 656 | 557 | 518 | 478 | 472 | 459 | 466 | 467 | 497 | 529 | 624 | 855 | 1732 | 2637 | | |
| 70 | 2007 | 920 | 451 | 344 | 299 | 269 | 209 | 174 | 169 | 168 | 196 | 243 | 265 | 303 | 393 | 761 | 1903 | | |
| 75 | 1047 | 282 | 158 | 126 | 115 | 97.5 | 74.7 | 74.0 | 68.0 | 70.7 | 69.0 | 84.8 | 95.8 | 104 | 125 | 209 | 769 | | |
| 80 | 230 | 69.0 | 42.1 | 38.1 | 32.2 | 28.8 | 24.6 | 23.6 | 21.5 | 22.3 | 22.2 | 25.2 | 26.9 | 31.7 | 34.2 | 52.4 | 118 | | |
| 85 | 13.7 | 11.1 | 8.26 | 6.33 | 4.77 | 4.28 | 3.49 | 2.70 | 2.42 | 2.79 | 3.01 | 3.23 | 3.35 | 4.66 | 6.27 | 8.74 | 10.0 | | |
| 90 | 11.0 | 9.68 | 7.60 | 5.33 | 3.45 | 2.51 | 1.93 | 1.59 | 1.44 | 1.48 | 1.63 | 2.11 | 3.11 | 5.06 | 7.57 | 9.95 | 11.7 | | |

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:FKY
Test Date:2023-12-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.354
Humidity:65.0%
Test Distance:10.783m [K=1.0000]
Remarks:

首信认证
Honesty First Certification

# Certificate of Registration

Certificate number：23221E200839R0S

Proof of

## HeiSolar Energy Co.,ltd

Unified Social Credit Code：91440300342861556K

Registered,Production/Business address：Building 17,Zhongpengcheng Industrial Zone, Heshuikou Community, Matian Street,Guangming District,ShenzhenChina

Conform to the environmental management system

GB/T24001-2016/ISO14001:2015 Standard requirements

Authentication range

Relevant environmental management activities in the places involved in the development and assembly of all in one solar street light

Issuing date：Jan.07, 2022

Validity period：Jan.06, 2025

Signature：

中国认可
国际互认
管理体系
MANAGEMENT SYSTEM
CNAS C192-M

北京首信联合认证有限公司 证书专用章

Beijing Honesty First Certification Co., Ltd
Room 1705 Block 1 NO.15 Shidaifengfan building majiapu road west Fengtai district Beijing P.R.China | Tel: 01063161700

# QUALITY MANAGEMENT SYSTEM CERTIFICATE

**Certificate No. 00119Q33912R0S/4403**

We hereby certify that

**HeiSolar Energy Co.,Ltd.**

Unified Social Credit Code: 91440300342861556K

6st Building,Hengguangyao Industial Park,Yonghe Road,Heping Community, Fuyong Street, Bao'an District, Shenzhen City,Guangdong Province, China

by reason of its

Quality Management System

has been awarded this certificate for compliance with the standard

GB/T 19001-2016 / ISO 9001:2015

The Quality Management System Applies in the following area:

Design, Production and After-sales of All In One Solar Light

**Certified since: May 31, 2022 Valid from: May 31, 2022 Valid until: May 30, 2025**

After a surveillance cycle, the certificate is valid only when used together with an Acceptance Notice of Surveillance Audit issued by CQC.
Please access www.cqc.com.cn for checking validity of the certificate.
This certificate and its relevant information can query in the website of Certification and Accreditation Administration of the People's Republic of China ( www.cnca.gov.cn).

IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

CNAS 中国认可 国际互认 管理体系 MANAGEMENT SYSTEM CNAS C001-M

Signed by: Lu Mei

Partner of IQNet THE INTERNATIONAL CERTIFICATION NETWORK

CHINA QUALITY CERTIFICATION CENTRE 中国质量认证中心

**CHINA QUALITY CERTIFICATION CENTRE**

Section 9, No.188, Nansihuan(the South Fourth Ring Road) Xilu(West Road), Beijing 100070,China

http://www.cqc.com.cn

A 0017162

2018年版

# Certificate of Conformity

## EC Council Directive 2014/30/EU

## Electromagnetic Compatibility

| | |
|---|---|
| **Certificate No.:** | RGT2024032900701-V1 |
| **Report No.:** | RGT2024032900701 |
| **Applicant's name:** | HeiSolar Energy Co.,Ltd. |
| **Applicant's Address:** | Building 17, No. A3, Fourth Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, Guangdong P.R. China |
| **Product:** | Solar Street Light |
| **Trade Mark(s):** | HeiSolar® |
| **Model(s):** | Refer to APPENDIX |
| **Rating(s):** | Refer to APPENDIX |
| **Standard(s):** | EN IEC 55015:2019/A11:2020<br>EN IEC 61000-3-2:2019/A1:2021<br>EN 61000-3-3:2013+A1:2019+A2:2021<br>EN IEC 61547:2023 |
| **Manufacturer name:** | HeiSolar Energy Co.,Ltd. |
| **Manufacturer's Address:** | Building 17, No. A3, Fourth Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, Guangdong P.R. China |
| **Factory name:** | HeiSolar Energy Co.,Ltd. |
| **Factory's Address:** | Building 17, No. A3, Fourth Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, Guangdong P.R. China |

This certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical Report and documentation are at the Licence Holder's disposal. This is to certify that the tested sample is in conformity with all provisions of Annex I of Council Directive 2014/30/EU.
This certificate does not imply assessment of the production of the product. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to the a.m. Directive.

**Signature:** Red Fan

**Date:2024-07-12**

Ring Testing Technology (Zhongshan) Co., Ltd
Room 203, 2nd Floor, Building D, Wanwei Lighting Plaza, No.59
Tongxing Road, Guzhen Town, Zhongshan City, China.
Email: rgt@rgtlab.com

# Certificate of Conformity

## EC Council Directive 2014/30/EU

## Electromagnetic Compatibility

## APPENDIX

This is an Appendix to Test Verification of Conformity Number: RGT2024032900701-V1

Model list

| Model Number | Voltage | Power |
|---|---|---|
| FC-10 | DC12.8V | 10W |
| FC-20 | DC12.8V | 20W |
| FC-30 | DC12.8V | 30W |
| FC-40 | DC12.8V | 40W |
| FC-50 | DC12.8V | 50W |
| FC-60 | DC12.8V | 60W |
| FC-80 | DC25.6V | 80W |
| FC-100 | DC25.6V | 100W |
| FC-120 | DC25.6V | 120W |
| W-20 | DC12.8V | 20W |
| W-40 | DC12.8V | 40W |
| W-60 | DC12.8V | 60W |
| W-80 | DC25.6V | 80W |
| W-100 | DC25.6V | 100W |

# Certificate of Conformity

| | |
|---|---|
| **Certificate No.:** | RGT2024032900702-V1 |
| **Report No.:** | RGT2024032900702 |
| **Applicant's name:** | HeiSolar Energy Co.,Ltd. |
| **Applicant's Address:** | Building 17, No. A3, Fourth Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, Guangdong P.R. China |
| **Product:** | Solar Street Light |
| **Model(s):** | FC-60, FC-10, FC-20, FC-30, FC-40, FC-50, FC-80, FC-100, FC-120, W-20, W-40, W-60, W-80, W-100 |
| **Standard(s):** | IEC62321- 1:2013<br>IEC62321-3- 1:2013<br>IEC62321-4:2013+AMD1:2017<br>IEC62321-5:2013<br>IEC62321-6:2015<br>IEC62321-7- 1:2015<br>IEC62321-7-2:2017<br>IEC62321-8:2017 |

The EUT described above has been consolidated by us and found in compliance with the council RoHS 2.0 Directive (EU) 2015/863 and (EU)2017/2102 amending Annex II to Directive 2011/65/EU.
This certificate does not imply assessment of the production of the product. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to the a.m. Directive.

RoHS

Ring Testing Technology (Zhongshan) Co., Ltd
Room 203, 2nd Floor, Building D, Wanwei Lighting Plaza, No.59 Tongxing Road, Guzhen Town, Zhongshan City, China.
Email: rgt@rgtlab.com

**Signature:**

**Date: 2024-07-15**

# TEST REPORT

| | |
|---|---|
| Report number: | RGT2024062100901 |
| Issue date: | 2024-07-09 |
| Total number of pages: | 20 |
| Testing laboratory name: | Ring Testing Technology (zhongshan) Co., Ltd |
| Laboratory Address: | Room 203, 2nd Floor, Building D, Wanwei Lighting Plaza, No.59 Tongxing Road, Guzhen Town, Zhongshan City, China. |
| Test by (+ signature): | Red Fan |
| Approved by (+ signature): | Sky Li |
| Applicant's name: | HeiSolar Energy Co.,Ltd. |
| address: | Building 17, No. A3, Fourth Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, Guangdong P.R. China |
| Manufacturer's name | HeiSolar Energy Co.,Ltd. |
| Address | Building 17, No. A3, Fourth Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, Guangdong P.R. China |
| **Test item description** | |
| Product category: | Solar Street Light |
| Trade Mark: | HeiSolar |
| Tested Style No.: | FC-60 |
| Series models: | FC-10, FC-20, FC-30, FC-40, FC-50 |
| Sample Received Date: | 2024-06-27 |
| Testing Period: | 2024-06-27 to 2024-07-03 |
| Test Requested: | With reference to EU Regulation (EC) No 1907/2006 (REACH), to screen two hundred and forty-one (241) Substances of Very High Concern (SVHC) |
| Test Method : | Please refer to next page(s). |
| Test Result: | Please refer to next page(s). |
| Test Conclusion: | As specified by client, refer to EU Regulation (EC) No 1907/2006 (REACH), to screen two hundred and forty-one (241) Substances of Very High Concern (SVHC) in the submitted sample. The list is the one that is published by European Chemicals Administration (ECHA) on June 27, 2024 |

# TEST REPORT

**Sample Description**

| | |
|---|---|
| (A1) | Mixture of nonmetal parts |
| (A2) | Mixture of metal parts |
| (A3) | Battery |

**A. SVHC testing results:**

| No. | Items | CAS No. | EC No. | MDL (%) | Total (%) | | |
|---|---|---|---|---|---|---|---|
| | | | | | (A1) | (A2) | (A3) |
| -- | tested SVHCs in Chemical list | / | / | / | N.D. | N.D. | N.D. |

**B. Tested SVHC Chemical list:**

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| The first 15 SVHC (Announced in October, 2008) Unit: % | | | | |
| 1 | Anthracene | 120-12-7 | 204-371-1 | 0.0050 |
| 2 | 4,4'-Diaminodiphenylmethane | 101-77-9 | 202-974-4 | 0.0050 |
| 3 | Dibutyl phthalate (DBP) | 84-74-2 | 201-557-4 | 0.0050 |
| 4 | Di-(2-ethylhexyl) Phthalate (DEHP) | 117-81-7 | 204-211-0 | 0.0050 |
| 5 | Benzyl butyl phthalate (BBP) | 85-68-7 | 201-622-7 | 0.0050 |
| 6 | Bis(tributyltin)oxide (TBTO) | 56-35-9 | 200-268-0 | 0.0050 |
| 7 | 5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene) | 81-15-2 | 201-329-4 | 0.0050 |
| 8 | Hexabromocyclododecane and all major diastereoisomers identified:(α-HBCDD, β-HBCDD,γ-HBCDD)(HBCDD) | 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8) | 247-148-4/ 221-695-9 | 0.0050 |
| 9 | Short Chain Chlorinated Paraffins (SCCPs) | 85535-84-8 | 287-476-5 | 0.0100 |
| 10* | Lead hydrogen arsenate* | 7784-40-9 | 232-064-2 | 0.0500 |
| 11* | Triethyl arsenate* | 15606-95-8 | 427-700-2 | 0.0500 |
| 12* | Diarsenic pentaoxide* | 1303-28-2 | 215-116-9 | 0.0500 |
| 13* | Diarsenic trioxide* | 1327-53-3 | 215-481-4 | 0.0500 |
| 14* | Cobalt dichloride* | 7646-79-9 | 231-589-4 | 0.0500 |
| 15* | Sodium dichromate* | 7789-12-0, 10588-01-9 | 234-190-3 | 0.0500 |
| The second 13 SVHC (Announced in January and March,2010) Unit: % | | | | |
| 16 | ①Anthracene oil | 90640-80-5 | 292-602-7 | 0.0500 |
| 17 | ①Anthracene oil, anthracene paste, distn. Lights**** | 91995-17-4 | 295-278-5 | 0.0500 |
| 18 | ①Anthracene oil, anthracene paste, anthracene fraction | 91995-15-2 | 295-275-9 | 0.0100 |

# TEST REPORT

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| 19 | ①Anthracene oil, anthracene-low | 90640-82-7 | 292-604-8 | 0.0100 |
| 20 | ①Anthracene oil, anthracene paste | 90640-81-6 | 292-603-2 | 0.0100 |
| 21 | Diisobutyl phthalate (DIBP) | 84-69-5 | 201-553-2 | 0.0100 |
| 22 | 2,4-Dinitrotoluene | 121-14-2 | 204-450-0 | 0.0100 |
| 23* | ②Lead chromate | 7758-97-6 | 231-846-0 | 0.0100 |
| 24* | ②Lead chromate molybdate sulphate red (C.I. Pigment Red 104) *** | 12656-85-8 | 235-759-9 | 0.0100 |
| 25* | ②Leadsulfochromate yellow (C.I. Pigment Yellow 34) *** | 1344-37-2 | 215-693-7 | 0.0100 |
| 26 | ①Pitch, coal tar, high temperature | 65996-93-2 | 266-028-2 | 0.0100 |
| 27 | Tris(2-chloroethyl) phosphate (TCEP) | 115-96-8 | 204-118-5 | 0.0100 |
| 28 | Acrylamide | 79-06-1 | 201-173-7 | 0.0100 |
| The third 8 SVHC (Announced in June, 2010) Unit: % | | | | |
| 29 | Trichloroethylene | 79-01-6 | 201-167-4 | 0.0100 |
| 30* | Boric acid* | 10043-35-3/ 11113-50-1 | 233-139-2 234-343-4 | 0.0100 |
| 31* | Disodium tetraborate, anhydrous* | 1330-43-4 12179-04-3 1303-96-4 | 215-540-4 | 0.0100 |
| 32* | Tetraboron disodium heptoxide, hydrate* | 12267-73-1 | 235-541-3 | 0.0100 |
| 33* | Sodium chromate* | 7775-11-3 | 231-889-5 | 0.0100 |
| 34* | Potassium chromate* | 7789-00-6 | 232-140-5 | 0.0100 |
| 35* | Ammonium dichromate* | 7789-09-5 | 232-143-1 | 0.0100 |
| 36* | Potassium dichromate* | 7778-50-9 | 231-906-6 | 0.0100 |
| The fourth 8 SVHC (Announced in December,2010) Unit: % | | | | |
| 37* | Chromium trioxide* | 1333-82-0 | 215-607-8 | 0.0500 |
| 38 | 2-Methoxyethanol | 109-86-4 | 203-713-7 | 0.0500 |
| 39 | 2-Ethoxyethanol | 110-80-5 | 203-804-1 | 0.0500 |
| 40* | Cobalt (II) diacetate* | 71-48-7 | 200-755-8 | 0.0500 |
| 41* | Cobalt (II) carbonate* | 513-79-1 | 208-169-4 | 0.0500 |
| 42* | Cobalt (II) dinitrate* | 10141-05-6 | 233-402-1 | 0.0500 |
| 43* | Cobalt (II) sulphate* | 10124-43-3 | 233-334-2 | 0.0500 |
| 44* | Acids generated from chromium trioxide* and their oligomers: Chromic acid, Dichromic acid Oligomers of chromic acid and dichromic acid | 7738-94-5 13530-68-2 | 231-801-5 236-881-5 | 0.0500 |

# TEST REPORT

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| The fifth 7 SVHC (Announced in June, 2011) Unit: % | | | | |
| 45 | (2-EEA)2-ethoxyethyl acetate | 111-15-9 | 203-839-2 | 0.0100 |
| 46* | strontium chromate* | 7789-06-2 | 232-142-6 | 0.0500 |
| 47 | ①1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP) | 68515-42-4 | 271-084-6 | 0.0500 |
| 48 | Hydrazine | 7803-57-8<br>302-01-2 | 206-114-9 | 0.0100 |
| 49 | 1-methyl-2-pyrrolidone | 872-50-4 | 212-828-1 | 0.0100 |
| 50 | 1,2,3-trichloropropane | 96-18-4 | 202-486-1 | 0.0100 |
| 51 | ①1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP) | 71888-89-6 | 276-158-1 | 0.0500 |
| The sixth 20 SVHC (Announced in December, 2011) Unit: % | | | | |
| 52* | ②Aluminosilicate, Refractory Ceramic Fibers | — | 650-017-00-8** | 0.0500 |
| 53* | ②Zirconia Aluminosilicate, Refractory Ceramic Fibres | — | 650-017-00-8** | 0.0500 |
| 54* | Dichromium tris(chromate) * | 24613-89-6 | 246-356-2 | 0.0500 |
| 55* | Potassium hydroxyoctaoxodizincate di-chromate* | 11103-86-9 | 234-329-8 | 0.0500 |
| 56* | Pentazinc chromate octahydroxide (C.I. pigment yellow 36) *** | 49663-84-5 | 256-418-0 | 0.0500 |
| 57 | Formaldehyde, oligomeric reaction products with aniline (technical MDA) | 25214-70-4 | 500-036-1 | 0.0500 |
| 58 | Bis(2-methoxyethyl) phthalate (DMEP) | 117-82-8 | 204-212-6 | 0.0050 |
| 59 | 2-Methoxyaniline; o-Anisidine | 90-04-0 | 201-963-1 | 0.0100 |
| 60 | 4-(1,1,3,3-tetramethylbutyl) phenol, (4-tert-Octylphenol) | 140-66-9 | 205-426-2 | 0.0100 |
| 61 | 1,2-Dichloroethane | 107-06-2 | 203-458-1 | 0.0100 |
| 62 | Bis(2-methoxyethyl) ether | 111-96-6 | 203-924-4 | 0.0100 |
| 63* | Arsenic acid* | 7778-39-4 | 231-901-9 | 0.0500 |
| 64* | Calcium arsenate* | 7778-44-1 | 231-904-5 | 0.0500 |
| 65* | Trileaddiarsenate* | 3687-31-8 | 222-979-5 | 0.0500 |
| 66 | N,N-dimethylacetamide (DMAC) | 127-19-5 | 204-826-4 | 0.0100 |
| 67 | Phenolphthalein | 77-09-8 | 201-004-7 | 0.0500 |
| 68 | 2,2'-dichloro-4,4'-methylenedianiline (MOCA) | 101-14-4 | 202-918-9 | 0.0100 |
| 69* | Lead azide; Lead diazide* | 13424-46-9 | 236-542-1 | 0.0500 |
| 70* | Lead styphnate* | 15245-44-0 | 239-290-0 | 0.0500 |
| 71* | Lead dipicrate* | 6477-64-1 | 229-335-2 | 0.0500 |

# TEST REPORT

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| The seventh 13 SVHC (Announced in June, 2012) Unit: % | | | | |
| 72 | 1,2-bis(2-methoxyethoxy) ethane (TEGDME; triglyme) | 112-49-2 | 203-977-3 | 0.0100 |
| 73 | 1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME) | 110-71-4 | 203-794-9 | 0.0100 |
| 74* | Diboron trioxide* | 1303-86-2 | 215-125-8 | 0.0500 |
| 75 | Formamide | 75-12-7 | 200-842-0 | 0.0100 |
| 76* | Lead (II)bis(methanesulfonate)* | 17570-76-2 | 401-750-5 | 0.0500 |
| 77 | TGIC(1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione) | 2451-62-9 | 219-514-3 | 0.0500 |
| 78 | β-TGIC (1,3,5-tris [(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione) | 59653-74-6 | 423-400-0 | 0.0500 |
| 79 | 4,4'-bis(dimethylamino)benzophenone (Michler'sketone) | 90-94-8 | 202-027-5 | 0.0100 |
| 80 | N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler'sbase) | 101-61-1 | 202-959-2 | 0.0100 |
| 81 | [4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. BasicViolet 3) | 548-62-9 | 208-953-6 | 0.0500 |
| 82 | [4-[[4-anilino-1-naphthyl] [4-(dimethylamino) phenyl] methylene] cyclohexa-2,5-dien-1-ylidene] dimethylammoniumchloride (C.I. Basic Blue 26) | 2580-56-5 | 219-943-6 | 0.0500 |
| 83 | α-Bis[4-(dimethylamino) phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) | 6786-83-0 | 229-851-8 | 0.0500 |
| 84 | 4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol | 561-41-1 | 209-218-2 | 0.0100 |
| The eighth 54 SVHC (Announced in December, 2012) Unit: % | | | | |
| 85 | Bis(pentabromophenyl) ether (DecaBDE) | 1163-19-5 | 214-604-9 | 0.0050 |
| 86 | Pentacosafluorotridecanoic acid | 72629-94-8 | 276-745-2 | 0.0100 |
| 87 | Tricosafluorododecanoic acid | 307-55-1 | 206-203-2 | 0.0100 |
| 88 | Henicosafluoroundecanoic acid | 2058-94-8 | 218-165-4 | 0.0100 |
| 89 | Heptacosafluorotetradecanoic acid | 376-06-7 | 206-803-4 | 0.0100 |
| 90 | ①4-(1,1,3,3-tetramethylbutyl) phenol, ethoxylated -covering well-defined substances and UVCBsubstances, polymers and homologues | — | — | 0.0100 |

# TEST REPORT

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| 91 | ①4-Nonylphenol, branched and linear - substances with a linear and/or branched alkyl chainwith a carbon number of 9 covalently bound inposition 4 to phenol, covering also UVCB- andwell-defined substances which include any of theindividual isomers or a combination thereof | — | — | 0.0100 |
| 92 | Diazene-1,2-dicarboxamide (C,C'-azodi(formamide)) | 123-77-3 | 204-650-8 | 0.0100 |
| 93 | Cyclohexane-1,2-dicarboxylic anhydride (Hexahydrophthalic anhydride - HHPA) | 85-42-7 | 201-604-9 | 0.0100 |
| 94 | Hexahydromethylphathalic anhydride, Hexahydro-4-methylphathalicanhydride, Hexahydro-1-methylphathalic anhydride, Hexahydro-3-methylphathalic anhydride | 25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9 | 247-094-1, 243-072-0, 256-356-4, 260-566-1 | 0.0100 |
| 95 | Methoxy acetic acid | 625-45-6 | 210-894-6 | 0.0100 |
| 96 | 1,2-Benzenedicarboxylic acid, dipentylester,branched and linear | 84777-06-0 | 284-032-2 | 0.0100 |
| 97 | Diisopentylphthalate (DIPP) | 605-50-5 | 210-088-4 | 0.0100 |
| 98 | N-pentyl-isopentylphtalate | 776297-69-9 | — | 0.0100 |
| 99 | 1,2-Diethoxyethane | 629-14-1 | 211-076-1 | 0.0100 |
| 100 | N,N-dimethylformamide; dimethyl formamide | 68-12-2 | 200-679-5 | 0.0100 |
| 101 | Dibutyltin dichloride (DBT) | 683-18-1 | 211-670-0 | 0.0100 |
| 102* | Acetic acid, lead salt, basic* | 51404-69-4 | 257-175-3 | 0.0500 |
| 103* | Basic lead carbonate (trileadbis(carbonate)dihydroxide) * | 1319-46-6 | 215-290-6 | 0.0500 |
| 104* | *Lead oxide sulfate (basic lead sulfate) * | 12036-76-9 | 234-853-7 | 0.0500 |
| 105* | [Phthalato(2-)]dioxotrilead (dibasic lead phthalate)* | 69011-06-9 | 273-688-5 | 0.0500 |
| 106* | *Dioxobis(stearato)trilead* | 12578-12-0 | 235-702-8 | 0.0500 |
| 107* | Fatty acids, C16-18, lead salts* | 91031-62-8 | 292-966-7 | 0.0500 |
| 108* | Lead bis(tetrafluoroborate)* | 13814-96-5 | 237-486-0 | 0.0500 |
| 109* | Lead cynamidate* | 20837-86-9 | 244-073-9 | 0.0500 |
| 110* | Lead dinitrate* | 10099-74-8 | 233-245-9 | 0.0500 |
| 111* | Lead oxide (lead monoxide) * | 1317-36-8 | 215-267-0 | 0.0500 |
| 112* | Lead tetroxide (orange lead) * | 1314-41-6 | 215-235-6 | 0.0500 |
| 113* | Lead titanium trioxide* | 12060-00-3 | 235-038-9 | 0.0500 |
| 114* | Lead Titanium Zirconium Oxide* | 12626-81-2 | 235-727-4 | 0.0500 |
| 115* | *Pentaleadtetraoxide sulphate* | 12065-90-6 | 235-067-7 | 0.0500 |

# TEST REPORT

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| 116* | 41***Pyrochlore, antimony lead yellow C.I.*** | 8012-00-8 | 232-382-1 | 0.0500 |
| 117* | ②Silicic acid, barium salt, lead-doped* | 68784-75-8 | 272-271-5 | 0.0500 |
| 118* | Silicic acid, lead salt* | 11120-22-2 | 234-363-3 | 0.0500 |
| 119* | *Sulfurous acid, lead salt, dibasic* | 62229-08-7 | 263-467-1 | 0.0500 |
| 120* | Tetraethyllead* | 78-00-2 | 201-075-4 | 0.0500 |
| 121* | Tetralead trioxide sulphate* | 12202-17-4 | 235-380-9 | 0.0500 |
| 122* | Trilead dioxide phosphonate* | 12141-20-7 | 235-252-2 | 0.0500 |
| 123 | Furan | 110-00-9 | 203-727-3 | 0.0100 |
| 124 | Propylene oxide; 1,2-epoxypropane; methyloxirane | 75-56-9 | 200-879-2 | 0.0100 |
| 125 | Diethyl sulphate | 64-67-5 | 200-589-6 | 0.0100 |
| 126 | Dimethyl sulphate | 77-78-1 | 201-058-1 | 0.0100 |
| 127 | 3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine | 143860-04-2 | 421-150-7 | 0.0100 |
| 128 | Dinoseb | 88-85-7 | 201-861-7 | 0.0100 |
| 129 | 4,4'-methylenedi-o-toluidine | 838-88-0 | 212-658-8 | 0.0100 |
| 130 | 4,4'-oxydianiline and its salts | 101-80-4 | 202-977-0 | 0.0100 |
| 131 | 4-Aminoazobenzene;4-Phenylazoaniline | 60-09-3 | 200-453-6 | 0.0100 |
| 132 | 4-methyl-m-phenylenediamine (2,4-toluene-diamine) | 95-80-7 | 202-453-1 | 0.0100 |
| 133 | 6-methoxy-m-toluidine (p-cresidine) | 120-71-8 | 204-419-1 | 0.0100 |
| 134 | Biphenyl-4-ylamine | 92-67-1 | 202-177-1 | 0.0100 |
| 135 | o-aminoazotoluene | 97-56-3 | 202-591-2 | 0.0050 |
| 136 | o-Toluidine; 2-Aminotoluene | 95-53-4 | 202-429-0 | 0.0100 |
| 137 | N-methylacetamide | 79-16-3 | 201-182-6 | 0.0100 |
| 138 | 1-bromopropane; n-propyl bromide | 106-94-5 | 203-445-0 | 0.0100 |
| The ninth 6 SVHC (Announced in June, 2013) Unit: % | | | | |
| 139* | Cadmium | 7440-43-9 | 231-152-8 | 0.0050 |
| 140* | Cadmium oxide* | 1306-19-0 | 215-146-2 | 0.0500 |
| 141 | Ammonium pentadecafluorooctanoate (APFO) | 3825-26-1 | 223-320-4 | 0.0100 |
| 142 | Pentadecafluorooctanoic acid (PFOA) | 335-67-1 | 206-397-9 | 0.0100 |
| 143 | Dipentyl phthalate (DPP) | 131-18-0 | 205-017-9 | 0.0100 |

# TEST REPORT

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| 144 | ①4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinationsthereof] | — | — | 0.0500 |
| The tenth 7 SVHC (Announced in December, 2013) Unit: % | | | | |
| 145* | Cadmium sulphide * | 1306-23-6 | 215-147-8 | 0.0100 |
| 146 | Dihexyl phthalate | 84-75-3 | 201-559-5 | 0.0100 |
| 147 | ②Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)] bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28) | 573-58-0 | 209-358-4 | 0.0100 |
| 148 | ②Disodium4-amino-3-[[4'-[(2,4-diaminophenyl) azo] [1,1'-biphenyl]-4-yl] azo] -5-hydroxy-6-(phenylazo) naphthalene-2,7-disulphonate (C.I. Direct Black 38) | 1937-37-7 | 217-710-3 | 0.0100 |
| 149 | Imidazolidine-2-thione (2-imidazoline-2-thiol) | 96-45-7 | 202-506-9 | 0.0100 |
| 150* | Lead di(acetate) * | 301-04-2 | 206-104-4 | 0.0500 |
| 151 | Trixylyl phosphate | 25155-23-1 | 246-677-8 | 0.0100 |
| The eleventh 4 SVHC (Announced in June, 2014) Unit: % | | | | |
| 152 | 1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear | 68515-50-4 | 271-093-5 | 0.0100 |
| 153* | Cadmium chloride* | 10108-64-2 | 233-296-7 | 0.0100 |
| 154* | Sodium perborate; perboric acid, sodium salt* | — | 239-172-9, 234-390-0 | 0.0100 |
| 155* | Sodium peroxometaborate* | 7632-04-4 | 231-556-4 | 0.0100 |
| The twelfth 6 SVHC (Announced in December, 2014) Unit: % | | | | |
| 156 | 2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328) | 25973-55-1 | 247-384-8 | 0.0100 |
| 157 | 2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320) | 3846-71-7 | 223-346-6 | 0.0100 |
| 158 | Cadmium fluoride* | 7790-79-6 | 232-222-0 | 0.0500 |
| 159 | Cadmium sulphate* | 10124-36-4; 31119-53-6 | 233-331-6 | 0.0500 |
| 160 | 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE) | 15571-58-1 | 239-622-4 | 0.0500 |

# TEST REPORT

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| 161 | Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE) | — | — | 0.0500 |
| The thirteenth 2 SVHC (Announced in June, 2015) Unit: % | | | | |
| 162 | 1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate (EC No. 201-559-5) | 68515-51-5<br>68648-93-1 | 271-094-0<br>272-013-1 | 0.0100 |
| 163 | 5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual isomers of [1] and [2] or any combination thereof] | — | — | 0.0100 |
| The fourteenth 5 SVHC (Announced in December, 2015) Unit: % | | | | |
| 164 | Nitrobenzene | 98-95-3 | 202-716-0 | 0.0100 |
| 165 | 2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl) phenol (UV-327) | 3864-99-1 | 223-383-8 | 0.0100 |
| 166 | 2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl) phenol (UV-350) | 36437-37-3 | 253-037-1 | 0.0100 |
| 167 | 1,3-propanesultone | 1120-71-4 | 214-317-9 | 0.0100 |
| 168 | Perfluorononan-1-oic acid (2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-heptadecafluorononanoic acid and its sodium and ammonium salts | 375-95-1<br>21049-39-8<br>4149-60-4 | 206-801-3 | 0.0100 |
| The fifteenth 1 SVHC (Announced in June, 2016) Unit: % | | | | |
| 169 | Benzo[def]chrysene | 50-32-8 | 200-028-5 | 0.0100 |
| The sixteenth 4 SVHC (Announced in January, 2017) Unit: % | | | | |
| 170 | 4,4'-isopropylidenediphenol (bisphenol A)(BPA) | 80-05-7 | 201-245-8 | 0.0100 |
| 171 | 4-heptylphenol, branched and linear (4-HPbl) | — | — | 0.0500 |
| 172 | Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts | 3108-42-7<br>335-76-2<br>3830-45-3 | --<br>206-400-3<br>221-470-5 | 0.0100 |
| 173 | 4-tert-pentylphenol (PTAP) | 80-46-6 | 201-280-9 | 0.0100 |
| The seventeenth 1 SVHC (Announced in July, 2017) Unit: % | | | | |
| 174 | Perfluorohexane-1-sulphonic acid and its salts (PFHxS) | — | — | 0.0100 |
| The eighteenth 7 SVHC (Announced in January, 2018) Unit: % | | | | |

# TEST REPORT

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| 175 | Dodecachloropentacyclo [12.2.1.16,9.02,13.05,10] octadeca-7,15-diene (“Dechlorane Plus”™) covering any of its individual anti- and syn-isomers or any combination thereof | — | — | 0.0500 |
| 176 | Benz[a]anthracene | 56-55-3, 1718-53-2 | 200-280-6 | 0.0100 |
| 177* | Cadmium nitrate* | 10022-68-1, 10325-94-7 | 233-710-6 | 0.0500 |
| 178* | Cadmium carbonate* | 513-78-0 | 208-168-9 | 0.0500 |
| 179* | Cadmium hydroxide* | 21041-95-2 | 244-168-5 | 0.0500 |
| 180 | Chrysene | 218-01-9, 1719-03-5 | 205-923-4 | 0.0100 |
| 181 | ①Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) with ≥0.1% w/w 4-heptylphenol, branched and linear (4-HPbl) | — | — | 0.0500 |
| The nineteenth 10 SVHC (Announced in June, 2018) Unit: % | | | | |
| 182 | Benzene-1,2,4-tricarboxylic acid 1,2 anhydride (trimellitic anhydride) (TMA) | 552-30-7 | 209-008-0 | 0.0100 |
| 183 | Benzo[ghi]perylene | 191-24-2 | 205-883-8 | 0.0100 |
| 184 | Decamethylcyclopentasiloxane (D5) | 541-02-6 | 208-764-9 | 0.0100 |
| 185 | Dicyclohexylphthalate(DCHP) | 84-61-7 | 201-545-9 | 0.0100 |
| 186* | Disodium octaborate* | 12008-41-2 | 234-541-0 | 0.0500 |
| 187 | Dodecamethylcyclohexasiloxane (D6) | 540-97-6 | 208-762-8 | 0.0100 |
| 188 | Ethylenediamine (EDA) | 107-15-3 | 203-468-6 | 0.0500 |
| 189* | Lead | 7439-92-1 | 231-100-4 | 0.0100 |
| 190 | Octamethylcyclotetrasiloxane (D4) | 556-67-2 | 209-136-7 | 0.0100 |
| 191 | Terphenyl, hydrogenated | 61788-32-7 | 262-967-7 | 0.0100 |
| The twentieth 6 SVHC (Announced in January, 2019) Unit: % | | | | |
| 192 | 1,7,7-trimethyl-3-(phenylmethylene)bicyclo[ 2.2.1]heptan-2-one (3-benzylidene camphor) | 15087-24-8 | 239-139-9 | 0.0100 |
| 193 | 2,2-bis(4'-hydroxyphenyl)-4-methylpentane | 6807-17-6 | 401-720-1 | 0.0100 |
| 194 | Benzo[k]fluoranthene | 207-08-9 | 205-916-6 | 0.0100 |
| 195 | Fluoranthene | 206-44-0, 93951-69-0 | 205-912-4 | 0.0100 |
| 196 | Phenanthrene | 85-01-8 | 201-581-5 | 0.0100 |
| 197 | Pyrene | 129-00-0, 1718-52-1 | 204-927-3 | 0.0100 |

# TEST REPORT

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| The twenty-first 4 SVHC (Announced in July, 2019) Unit: % | | | | |
| 198 | 4-tert-butylphenol | 98-54-4 | 202-679-0 | 0.0100 |
| 199 | 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts and its acyl halides | -- | -- | 0.0100 |
| 200 | 2-methoxyethyl acetate | 110-49-6 | 203-772-9 | 0.0100 |
| 201 | Tris (4-nonylphenyl, branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP) | -- | -- | 0.0100 |
| The twenty- second 4 SVHC (Announced in January 16, 2020) Unit: % | | | | |
| 202 | 2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone | 119313-12-1 | 404-360-3 | 0.0100 |
| 203 | 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one | 71868-10-5 | 400-600-6 | 0.0100 |
| 204 | Diisohexyl phthalate | 71850-09-04 | 276-090-2 | 0.0100 |
| 205 | Perfluorobutane sulfonic acid (PFBS) and its salts | / | / | 0.0100 |
| The twenty- third 4 SVHC (Announced in June 25, 2020) Unit: % | | | | |
| 206 | 1-vinylimidazole | 1072-63-5 | 214-012-0 | 0.0100 |
| 207 | 2-methylimidazole | 693-98-1 | 211-765-7 | 0.0100 |
| 208 | Butyl-hydroxybenzoate | 94-26-8 | 202-318-7 | 0.0100 |
| 209 | Dibutylbis(pentane-2,4-dionato-O,O')tin | 22673-19-4 | 245-152-0 | 0.0100 |
| The twenty-four 2 SVHC (Announced in January 19, 2021) Unit: % | | | | |
| 210 | Dioctyltin dilaurate, stannane, dioctyl-, bis(coco acyloxy) derivs., and any other stannane, dioctyl-, bis(fatty acyloxy) derivs. wherein C12 is the predominant carbon number of the fatty acyloxy moiety | -- | -- | 0.0100 |
| 211 | Bis(2-(2-methoxyethoxy)ethyl)ether | 143-24-8 | 205-594-7 | 0.0100 |
| The twenty-five 8 SVHC (Announced in July 08, 2021)Unit: % | | | | |
| 212 | 1,4-dioxane | 123-91-1 | 204-661-8 | 0.0100 |
| 213 | 2,2-bis(bromomethyl)propane1,3-diol (BMP)<br>2,2-dimethylpropan-1-ol, tribromo derivative/3-bromo-2,2-bis(bromomethyl)-1-propanol (TBNPA)<br>2,3-dibromo-1-propanol (2,3-DBPA) | 3296-90-0 (BMP);<br>36483-57-5/ 1522-92-5 (TBNPA);<br>96-13-9 (2,3-DBPA) | 221-967-7 (BMP);<br>253-057-0 (TBNPA);<br>202-480-9 (2,3-DBPA) | 0.0100 |
| 214 | 2 - (4 - tertiary butyl benzyl) acetaldehyde and its stereoisomers | -- | -- | 0.0100 |
| 215 | 4,4'-(1-methylpropylidene) bisphenol; (bisphenol B; BPB) | 77-40-7 | 201-025-1 | 0.0100 |
| 216 | Glutaral (Glutaraldehyde; GA) | 111-30-8 | 203-856-5 | 0.0100 |

# TEST REPORT

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| 217 | Medium Chain Chlorine Paraffin (MCCP) [ UVCB substance, consisting of 80% direct chain chloroalkane, carbon chain length between C14 and C17] | -- | -- | 0.0100 |
| 218 | Orthoboric acid, sodium salt | 13840-56-7 | 237-560-2 | 0.0100 |
| 219 | Carbon chain (C12 main, straight or branched chain) mainly in the counteralkyphenolic matter and any single isomer or combination (PDDP) | -- | -- | 0.0100 |
| The twenty-six 4 SVHC (Announced in January 17, 2022)Unit: % | | | | |
| 220 | 6,6′-di-tert-butyl-2,2′-methylenedi-p-cresol (DBMC) | 119-47-1 | 204-327-1 | 0.0100 |
| 221 | Tris(2-methoxyethoxy)vinylsilane | 1067-53-4 | 213-934-0 | 0.0100 |
| 222 | (±)-1,7,7-trimethyl-3-[(4-methylphenyl)methylene]bicyclo[2.2.1]heptan-2-one covering any of the individual isomers and/or combinations thereof (4-MBC) | -- | -- | 0.0100 |
| 223 | S-(tricyclo[5.2.1.0’2,6]deca-3-en-8(or 9)-yl) O-(isopropyl or isobutyl or 2-ethylhexyl) O-(isopropyl or isobutyl or 2-ethylhexyl) phosphorodithioate | 255881-94-8 | 401-850-9 | 0.0100 |
| The twenty-seven 1 SVHC (Announced in June 10, 2022)Unit: % | | | | |
| 224 | N-(hydroxymethyl)acrylamide | 924-42-5 | 213-103-2 | 0.0100 |
| The twenty-eight 9 SVHC (Announced in January 17, 2023)Unit: % | | | | |
| 225 | 1,1'-[ethane-1,2-diylbisoxylbis [2,4,6-tribromobenzenel | 37853-59-1 | 253-692-3 | 0.0100 |
| 226 | 2,2’,6,6’-tetrabromo-4,4’-isopropylidenediphenol | 79-94-7 | 201-236-9 | 0.0100 |
| 227 | 4,4’-sulphonyldiphenol | 1980/9/1 | 201-250-5 | 0.0100 |
| 228* | Barium diboron tetraoxide* | 13701-59-2 | 237-222-4 | 0.0100 |
| 229 | Bis (2-ethylhexyl) tetrabromophthalatecovering any of theindividual isomersand / or combinationsthereot | -- | -- | 0.0100 |
| 230 | lsobutvl 4-hydroxybenzoate | 4247-2-3 | 224-208-8 | 0.0100 |
| 231 | Melamine | 108-78-1 | 203-615-4 | 0.0100 |
| 232 | Perfluoroheptanoic acid and its salts | -- | -- | 0.0100 |
| 233 | reaction mass of 2,2,3,3,5,5,6,6-octafluoro-4-(1,1,1,2,3,3,3-heptafluoropropan-2-yl) morpholine and 2,2,33,5,5,6,6-octafluoro-4-(heptafluoropropyl)mor pholine | -- | 473-390-7 | 0.0100 |
| The twenty-nine 2 SVHC (Announced in June 14, 2023)Unit: % | | | | |
| 234 | Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide | 278-355-8 | 75980-60-8 | 0.0100 |

# TEST REPORT

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| 235 | Bis(4-chlorophenyl) sulphone | 201-247-9 | 80-07-9 | 0.0100 |
| The thirty 5 SVHC (Announced in January 23, 2024)Unit: % | | | | |
| 236 | 2.4.6-tri-tert-butylphenol (2.4.6-TTBP) | 732-26-3 | 211-989-5 | 0.0100 |
| 237 | 2-(2H-benzotriaz0l-2-)-4-(1.1.3.3tetramethyl butyl)phenol | 3147-759 | 221-5735 | 0.0100 |
| 238 | 2-(dimethylamino)-2-((4methylphenyl)methyj -1-(4-(morpholin-4-yl)phenyl]butan-1-one | 119344-864 | 438-340-0 | 0.0100 |
| 239 | Bumetrizole(UV-326) | 3896-11-5 | 223-4454 | 0.0100 |
| 240 | Oligomerisation and alkylation reactionproducts of 2-phenylpropene and phenolOAPP) | -- | 700-960-7 | 0.0100 |

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# TEST REPORT

| No. | Items | CAS No. | EC No. | Report Limit |
|---|---|---|---|---|
| The thirty-one batches 1 SVHC (Announced in June 27, 2024)Unit: % | | | | |
| 241 | Bis(α,α-dimethylbenzyl) peroxide | 80-43-3 | 201-279-3 | 0.0500 |

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# TEST REPORT

**Note:**
-0.1%=1000mg/kg
-mg/kg=ppm=parts per million
-*: Inorganic SVHC compounds are obtained by converting the test results of cobalt, chloride, sodium, arsenic, chromium, potassium, lead, boron, zirconium, titanium, tin, phosphorus, calcium, zinc, strontium, molybdenum, aluminum cadmium and barium elements, and confirmed through the appropriate solvent extraction. At the same time, customers are suggested to check the chemical formula table, to further confirm whether above materials are contained.
-**: All refractory ceramic fibers are covered by index number 650-017-00-8 in Annex VI of the Regulation on Classification, Labeling and Packaging of chemical substances and mixtures, the so-called CLP Regulation (Regulation (EC) No 1272/2008).
-***: C.I.: Color Index
-****: Light fractions from distillation
-①: In view of the substances are established as UVCB substances (substances of unknown or variable composition, complex reaction products or biological materials) consisting of different and variable constituents the test results are calculated based on the main constituents of the representative compounds for substances.
-②: In view of the substance contain variable substances, the test results are calculated based on main constituents of the representative compounds for the substances, and the test results of the representative compounds are calculated based on the result of specified heavy metal elements.

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# TEST REPORT

**Additional information:**

(1) The chemical analysis of specified SVHC is performed by means of currently available analytical techniques against the following SVHC related documents published by ECHA:
http://echa.europa.eu/web/guest/candidate-list-table
These lists are under evaluation by ECHA and may subject to change in the future.

(2) Concerning article(s):

In accordance with Regulation (EC) No 1907/2006, any EU producer or importer of articles shall notify ECHA, in accordance with paragraph 4 of Article 7, if a substance meets the criteria in Article 57 and is identified in accordance with Article 59(1) of the Regulation, if (a) the substance in the Candidate List is present in those articles in quantities totalling over one tonne per producer or importer per year; and (b) the substance in the Candidate List is present in those articles above a concentration of 0.1% weight by weight (w/w).

Article 33 of Regulation (EC) No 1907/2006 requires supplier of an article containing a substance meeting the criteria in Article 57 and identified in accordance with Article 59(1) in a concentration above 0.1% weight by weight (w/w) shall provide the recipient of the article with sufficient information, available to the supplier, to allow safe use of the article including, as a minimum, the name of that substance in the Candidate List.

(3) Concerning material(s):

Test results in this report are based on the tested sample. This report refers to testing result of tested sample submitted as homogenous material(s). In case such material is being used to compose an article, the results indicated in this report may not represent SVHC concentration in such article. If this report refers to testing result of composite material group by equal weight proportion, the material in each composite test group may come from more than one article.

If the sample is a substance or mixture, and it directly exports to EU, client has the obligation to comply with the supply chain communication obligation under Article 31 of Regulation (EC) No. 1907/2006 and the conditions of Authorization of substance of very high concern included in the Annex XIV of the Regulation (EC) No. 1907/2006.

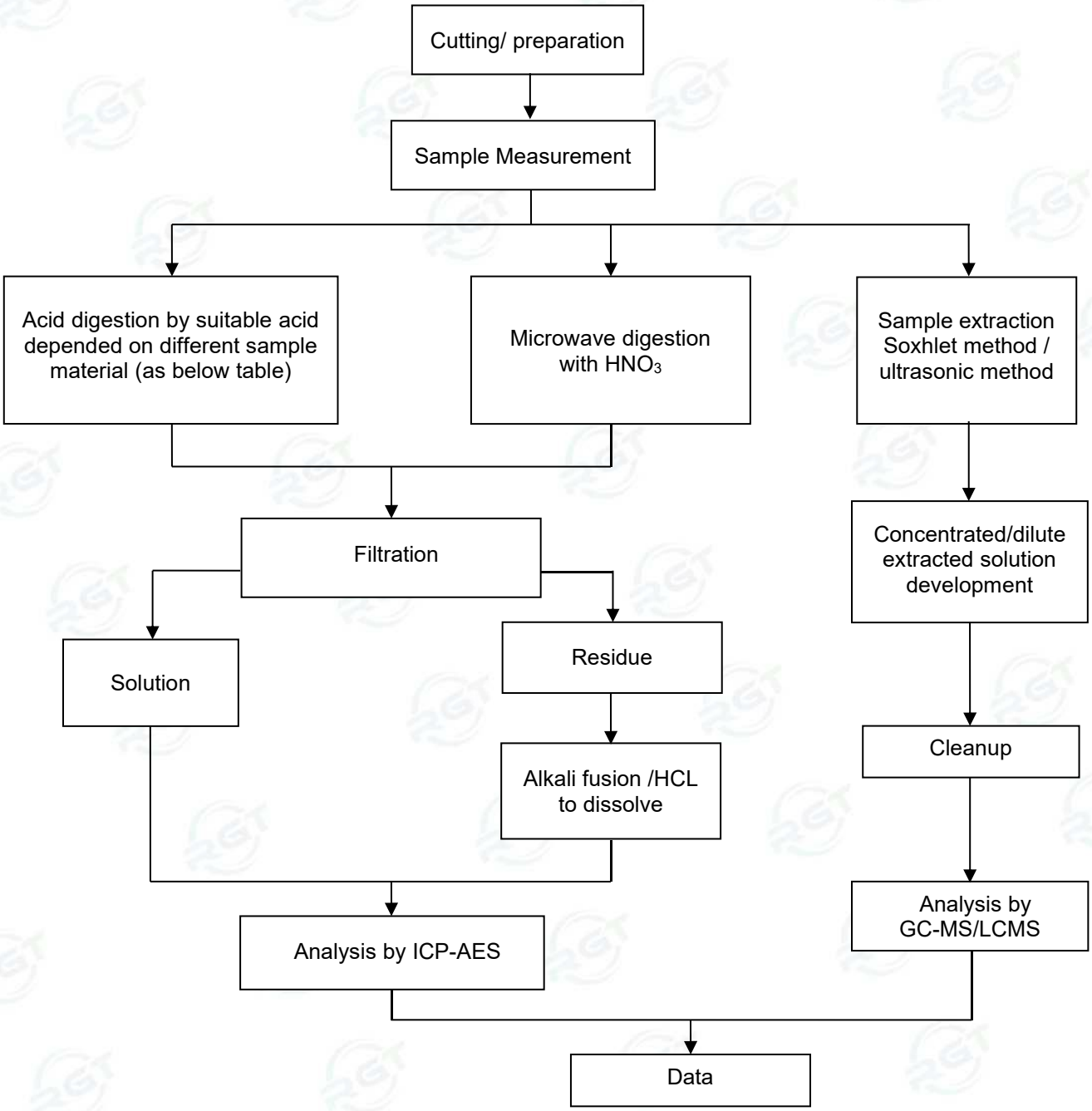
(4) Concerning substance and preparation:

If a SVHC is found over 0.1% (w/w) and/or the specific concentration limit which is set in Regulation (EC) No 1272/2008 and its amendments, client is suggested to prepare a Safety Data Sheet (SDS) against the SVHC to comply with the supply chain communication obligation under Regulation (EC) No 1907/2006, in which:
-a substance that is classified as hazardous under the CLP Regulation (EC) No 1272/2008.
-a mixture that is classified as hazardous under the CLP Regulation (EC) No 1272/2008, when it contains a substance with concentration equal to, or greater than the classification limit as set in Regulation (EC) No. 1272/2008; or
-a mixture is not classified as hazardous under the CLP Regulation (EC) No 1272/2008, but contains either:
(a) a substance posing human health or environmental hazards in an individual concentration of ≥ 1 % by weight for mixtures that are solid or liquids (i.e., non-gaseous mixtures) or ≥ 0.2 % by volume for gaseous mixtures; or
(b) a substance that is PBT, or vPvB in an individual concentration of ≥ 0.1 % by weight for mixtures that are solid or liquids (i.e., non-gaseous mixtures); or
(c) a substance on the SVHC candidate list (for reasons other than those listed above), in an individual concentration of ≥ 0.1 % by weight for non-gaseous mixtures; or
(d) a substance for which there are Europe-wide workplace exposure limits.

**********

# TEST REPORT

## Appendix

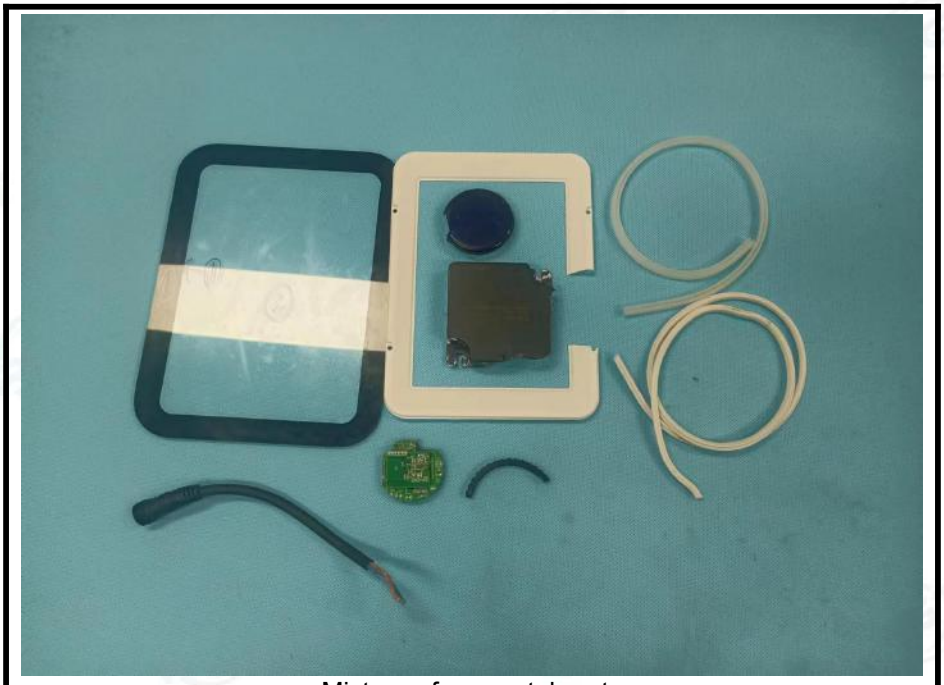



**********

# TEST REPORT

**The photo of the sample**

# TEST REPORT



Mixture of nonmetal parts

Mixture of metal parts

# TEST REPORT


Battery

ANT authenticate the photo on original report only

Statement:

1. The test report is considered invalidated without approval signature, special seal on the perforation.
2. The result(s) shown in this report refer only to the sample(s) tested.
3. Without written approval of RGT, this report can't be reproduced except in full.
4. The sample(s) and sample information was/were provided by the client who should be responsible for the authenticity which RGT hasn't verified.
5. In case of any discrepancy between the English version and Chinese version of the testing reports(if generated), the Chinese version shall prevail.

*** End of Report ***

# Single Test Report

| | |
|---|---|
| **Report Number.....:** | RGT2024032900901 |
| **Date of issue.....:** | 2024-07-11 |
| **Total number of pages.....:** | 14 pages |
| **Applicant's name.....:** | HeiSolar Energy Co.,Ltd. |
| **Address.....:** | Building 17, No. A3,Fourth Industrial Zone,Heshuikou Community, Matian Street,Guangming District, Shenzhen,Guangdong P.R. China |
| **Name of Testing Laboratory preparing the Report.....:** | Ring Testing Technology (Zhongshan) Co., Ltd.<br>Room 203, 2nd Floor, Building D, Wanwei Lighting Plaza, No.59 Tongxing Road, Guzhen Town, Zhongshan City, China. |
| **Tested by (name, function, signature).....:** | Hank Zhong/<br>Project Engineer |
| **Approved by (name, function, signature)...:** | Jin Liang/<br>Manger Engineer |

**Test specification:**

| | |
|---|---|
| **Standard.....:** | Refer to clause 9.2.2 and clause 9.2.7 of EN IEC 60598-1: 2021+A11:2022 and IEC 60598-1: 2020 |
| **Test procedure.....:** | IP66 test according to client requirement |
| **Testing period.....:** | 2024-07-10 to 2024-07-11 |
| **Non-standard test method.....:** | N/A |
| **Test item description.....:** | Solar Street Light |
| **Trade Mark.....:** | HeiSolar® |
| **Manufacturer.....:** | HeiSolar Energy Co.,Ltd.<br>Building 17, No. A3,Fourth Industrial Zone,Heshuikou Community, Matian Street,Guangming District, Shenzhen,Guangdong P.R. China |
| **Model/Type reference.....:** | FC-60, FC-120, W100 (more models refer to page 2 |
| **Ratings.....:** | Class III; IP66;<br>Other information see "model list" |
| **Remark / Note.....:** | All models have same electronic and mechanical structure, the differences between them were size and rated power.<br>After review, Model FC-120,FC-60 and W-100 were chosen to do full test。 |

**General disclaimer:**

The test results presented in this report relate only to the object tested.
This report shall not be reproduced.

| IEC/EN IEC 60598-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

**General product information and other remarks:**

1.Product covered by this report are class III Solar Street Light
2.All models have similar electronic and mechanical structure, the differences between were power and appearance.
3.Rating: Class III, IP66 detail see model list as below:

Model list

| Model Number | Picture | Power |
|---|---|---|
| FC-10 |  | 10w |
| FC-20 | | 20w |
| FC-30 | | 30w |
| FC-40 | | 40w |
| FC-50 | | 50w |
| FC-60 | | 60w |
| FC-40 |  | 40w |
| FC-50 | | 50w |
| FC-60 | | 60w |
| FC-80 | | 80w |
| FC-100 | | 100w |
| FC-120 | | 120w |
| W-20 |  | 20w |
| W-40 | | 40w |
| W-60 | | 60w |
| W-80 | | 80w |
| W-100 | | 100w |

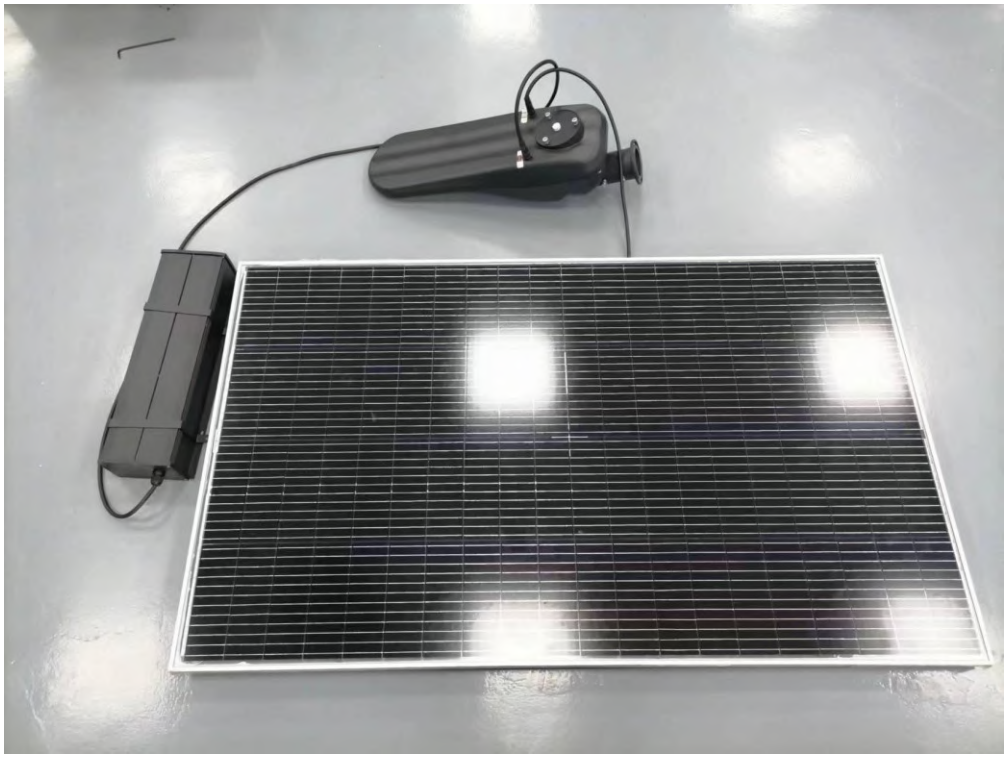
| IEC/EN IEC 60598-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **9.2** | **Tests for ingress of dust, solid objects and moisture:** | | P |
| | - classification according to IP..... : | IP66 | — |
| | - mounting position during test ..... : | As normal use | — |
| | - fixing screws tightened; torque (Nm) ..... : | 2/3 torque | — |
| | - tests according to clauses..... : | Clause 9.2.2 and clause 9.2.7 | — |
| | - electric strength test afterwards | | P |
| | a) no deposit in dust-proof luminaire | | N/A |
| | b) no talcum in dust-tight luminaire | | P |
| | c) no trace of water on current-carrying parts or on insulation where it could become a hazard | | P |
| | c.1) For luminaires without drain holes – no water entry | | P |
| | c.2) For luminaires with drain holes – no hazardous water entry | | N/A |
| | d) no water in watertight or pressure watertight luminaire | | N/A |
| | e) no contact with live parts (IP 2X) | | N/A |
| | e) no entry into enclosure (IP 3X and IP 4X) | | N/A |
| | e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X) | | N/A |
| | f) no trace of water on part of lamp requiring protection from splashing water | | N/A |
| | g) no damage of protective shield or glass envelope | | P |

Note:
P(Pass): means test object does meet the requirement:
F(Fail): means test object does not meet the requirement
N/A: means the clause is not applicable for the appliance
N/C: means the clause is not checked on the appliance

Appendix: product photo:

Overall view for FC-120



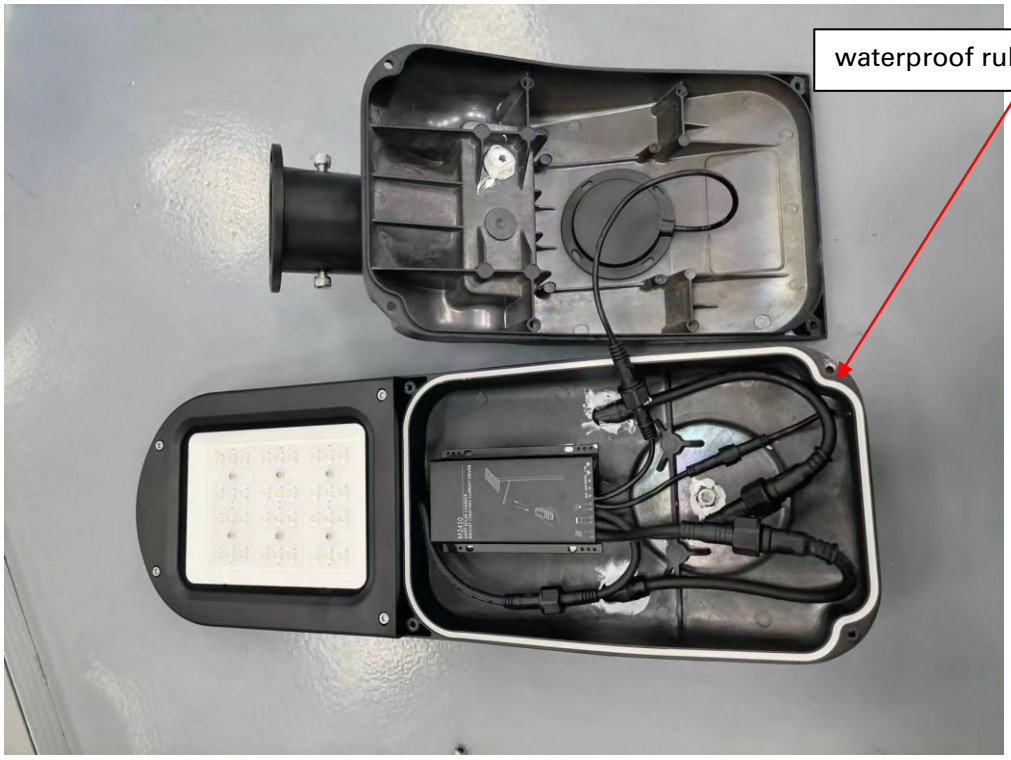
Back view for FC-120

Appendix: product photo:

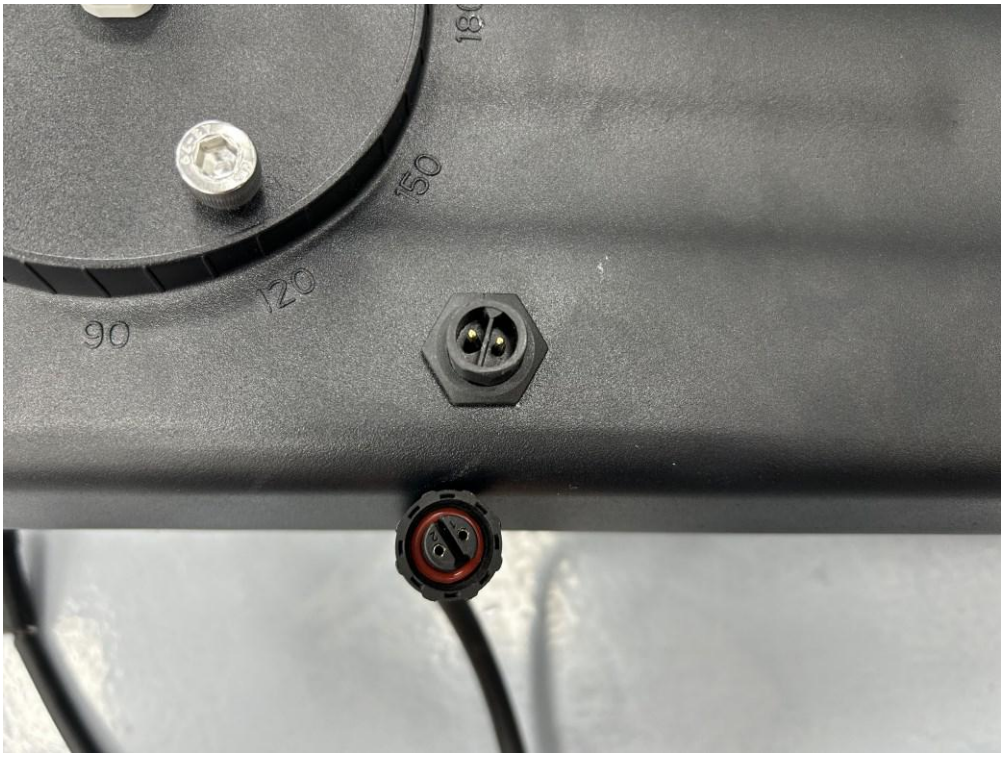
Overall view for FC-120(Lamp)

Rear view for FC-120(Lamp)

Appendix: product photo:

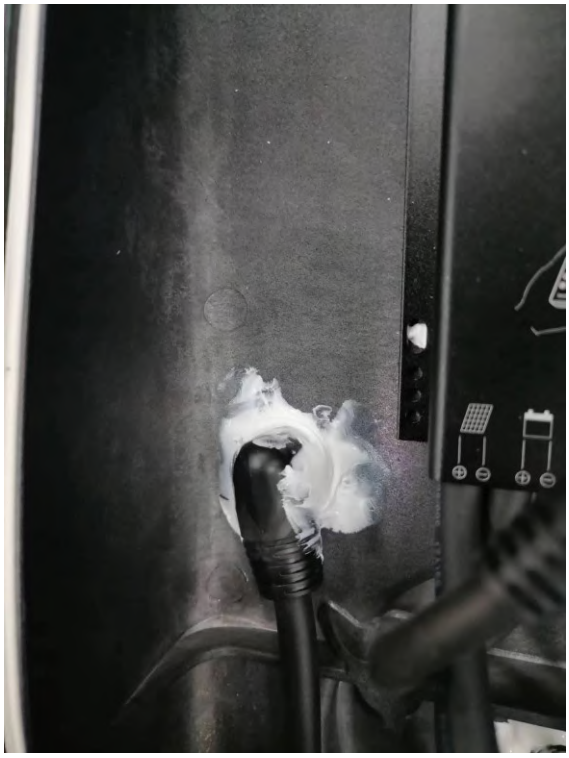



Exploration view for FC-120(Lamp)

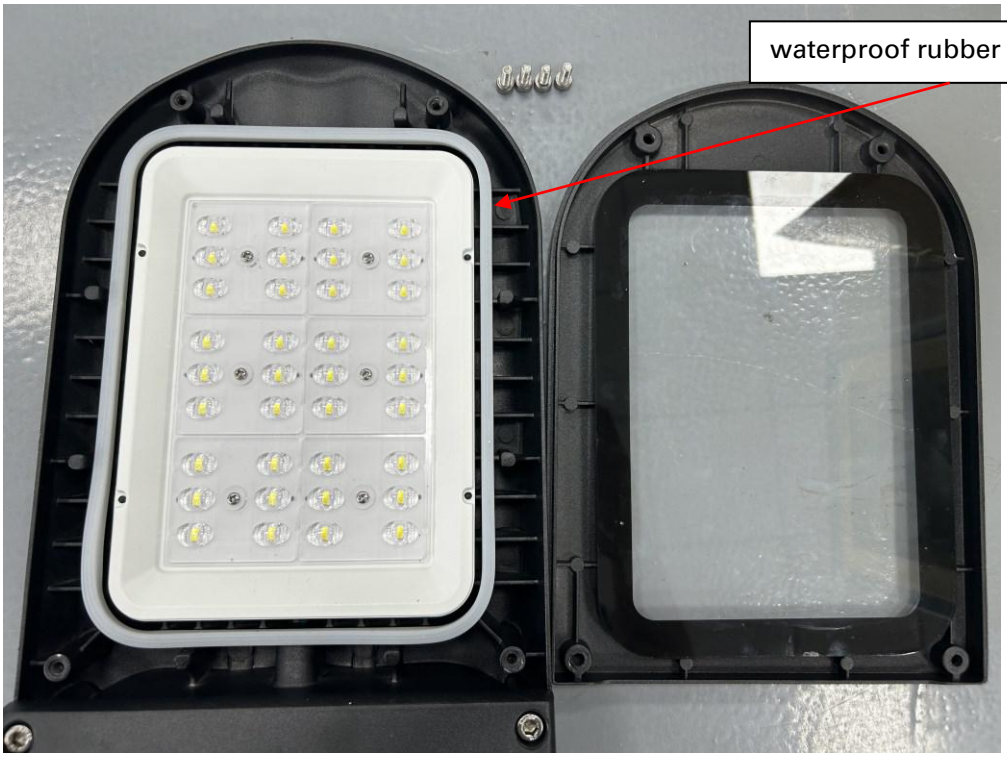



Front view of dc connector for FC-120(Lamp)

Appendix: product photo:

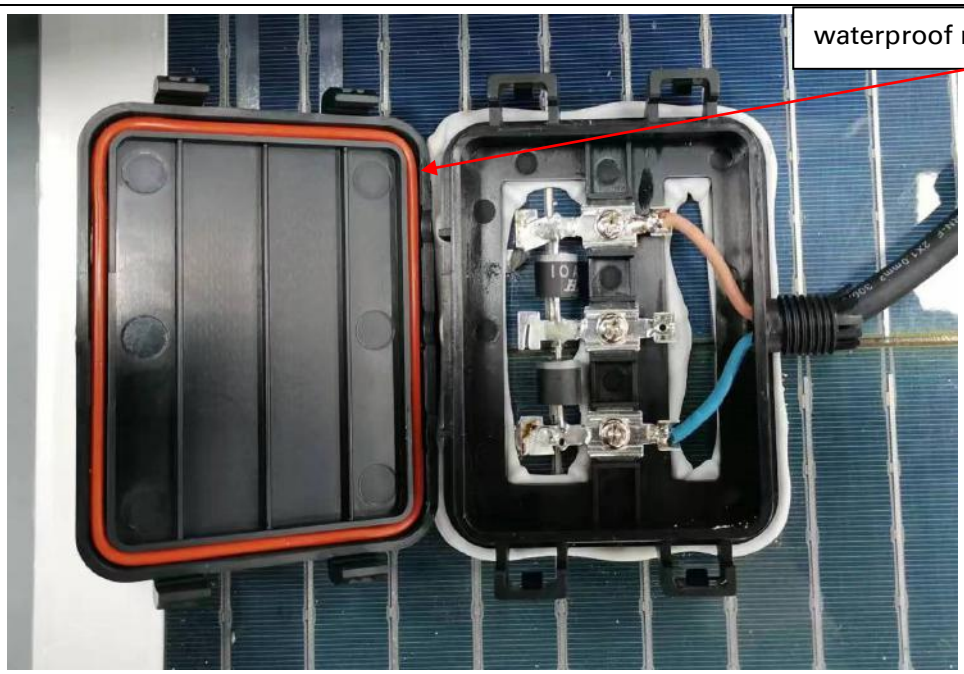


Back view of dc connector for FC-120(Lamp)




Detail for glass cover for FC-120(Lamp)
(Same as FC-60)

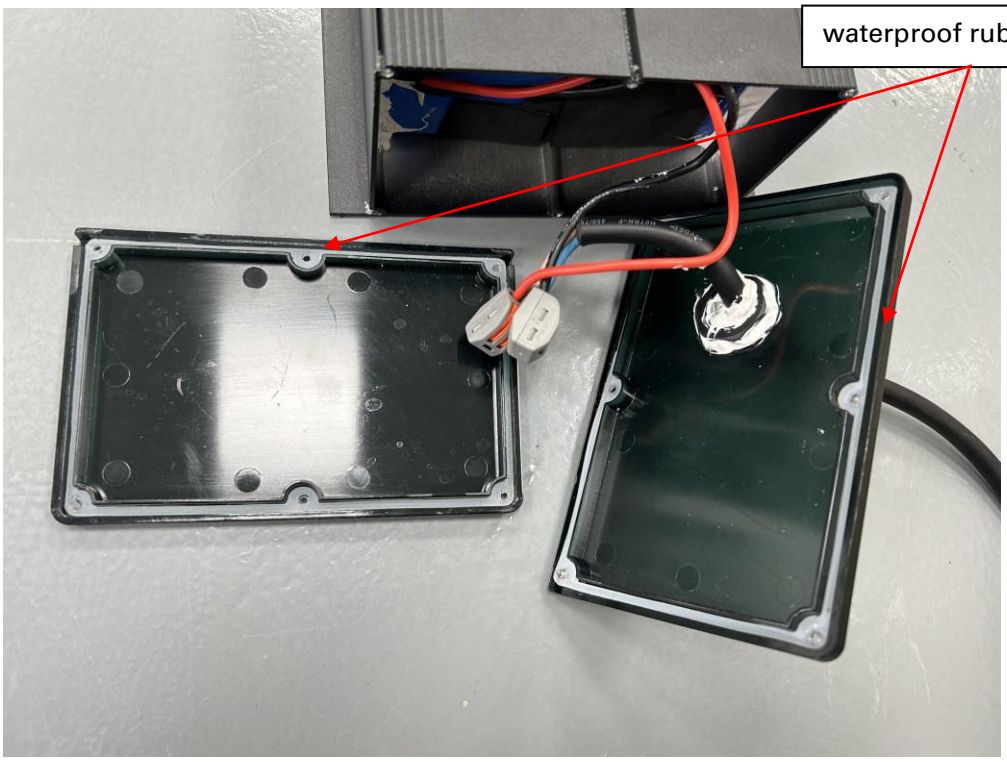
Appendix: product photo:



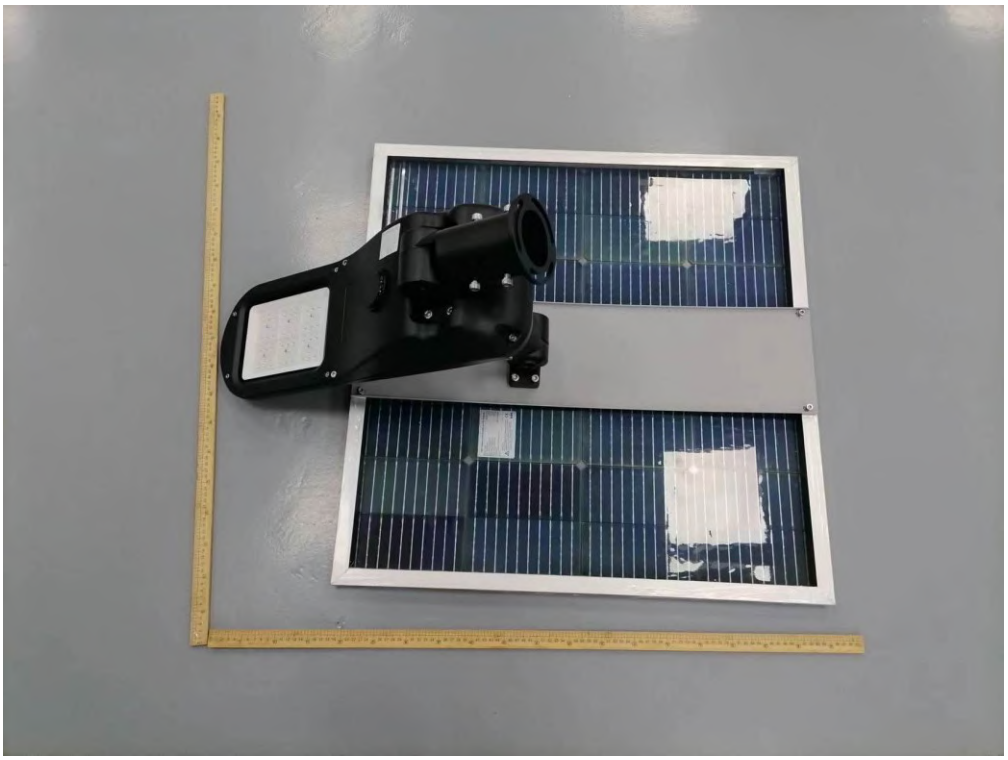

Detail view of junction box for FC-120(Photovoltaic panel)
(Same as FC-60)

Cover view for FC-120(Battery)

Appendix: product photo:




Detail view of Battery case for FC-120(Battery)



Overall view for FC-60

Appendix: product photo:

Overall view for FC-60(Lamp)

Back view for FC-60(Lamp)

Appendix: product photo:

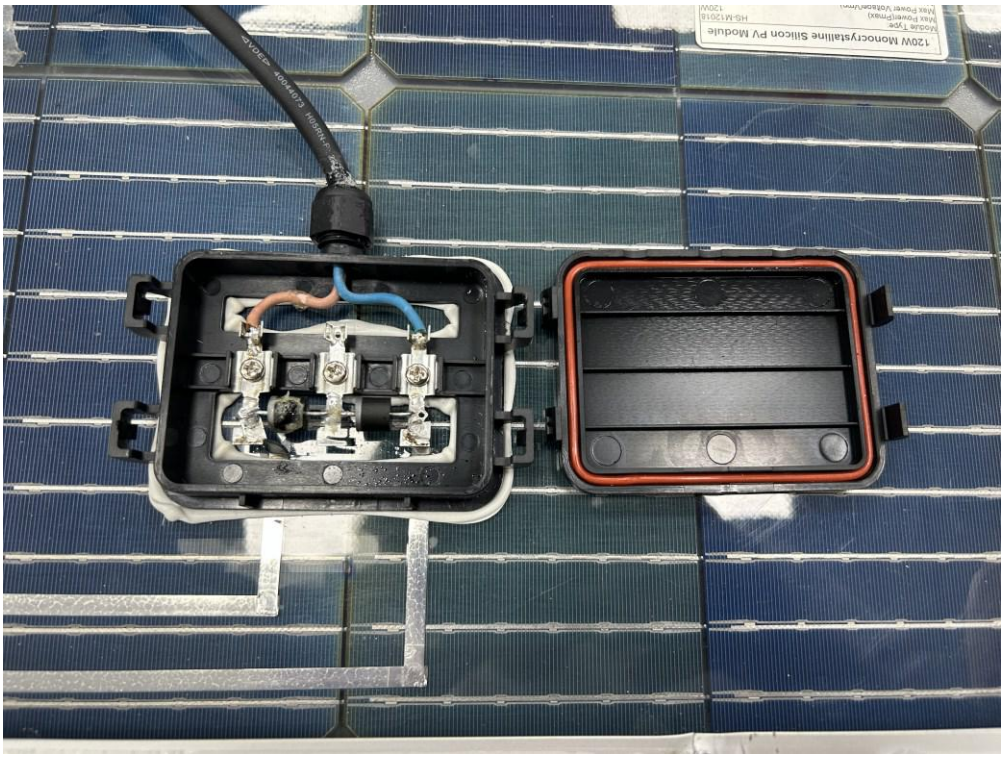

Exploration view for FC-60(Lamp)

(The rest of the waterproof structure is the same as the FC-120, the difference is that the battery was built in)


Connector view for FC-60

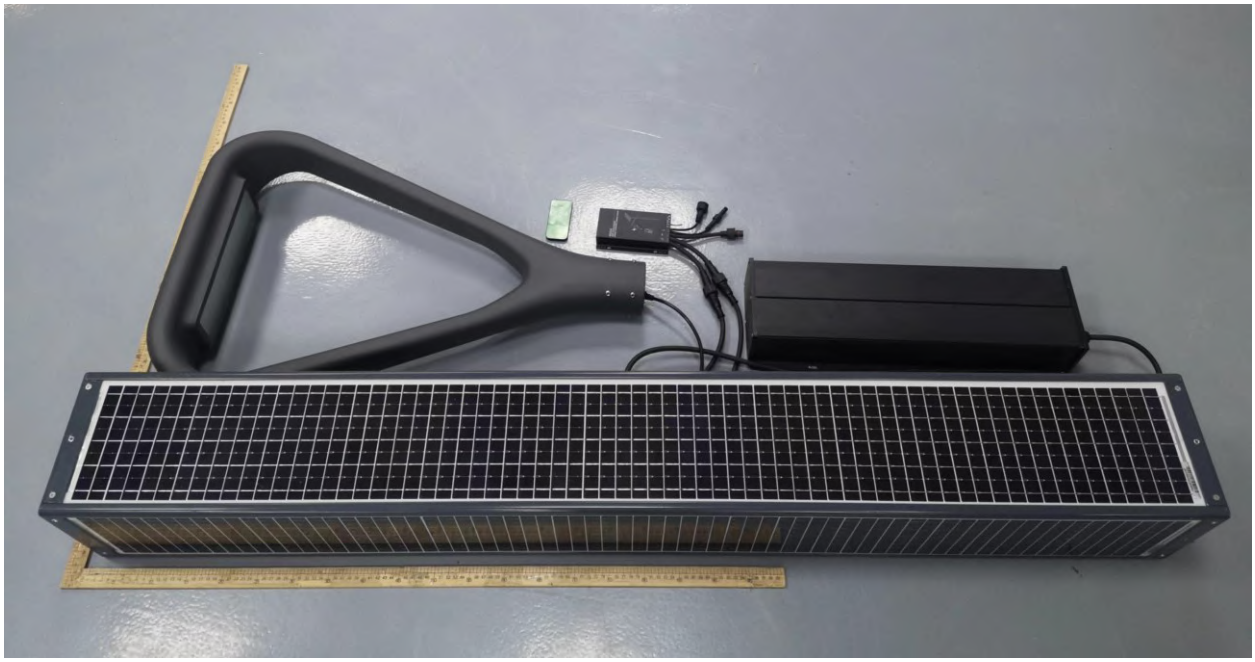
Appendix: product photo:

Glass view for FC-60



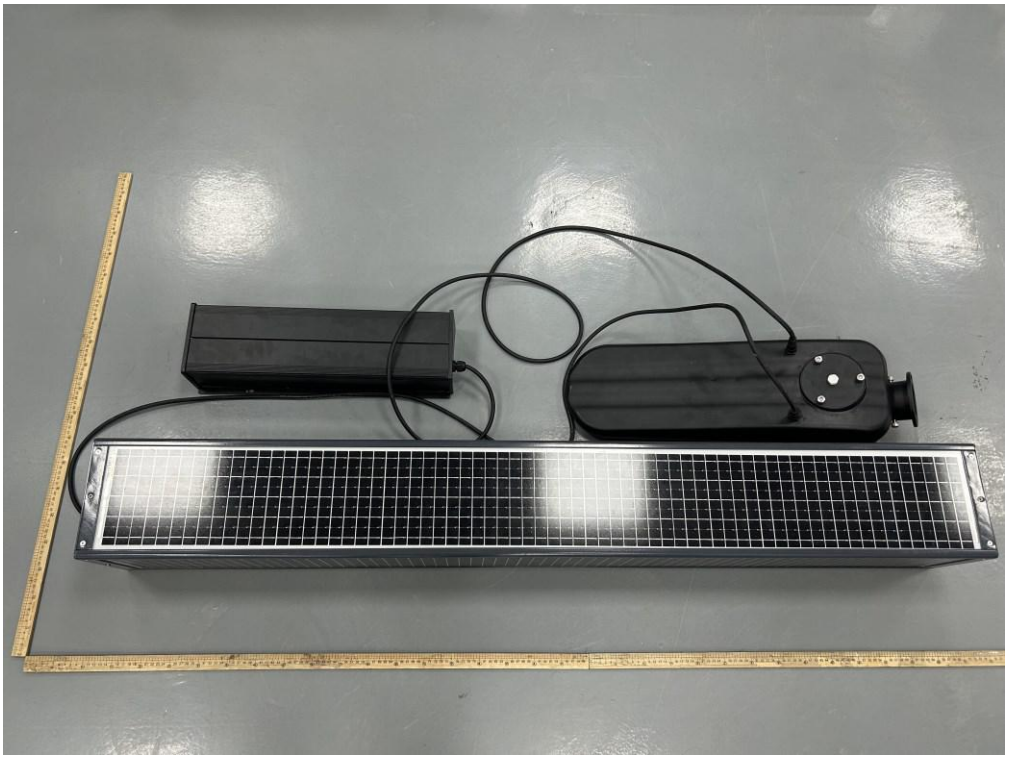

Detail view of junction box for FC-120(Photovoltaic panel)
(Same as FC-60)

Appendix: product photo:



Overall view for W-100

(The photovoltaic panel and battery pack used are the same as FC-120)



Supplementary view for W-100

(The photovoltaic panel can be adapted to the battery pack and lamp body of the FC-120)

Appendix: product photo:

Lamp body view for W-100


Detail view for W-100

---End of the report---

# Single Test Report

| | |
|---|---|
| **Report Number.....:** | RGT2024032900902 |
| **Date of issue.....:** | 2024-07-11 |
| **Total number of pages.....:** | 14 pages |
| **Applicant's name.....:** | HeiSolar Energy Co.,Ltd. |
| **Address.....:** | Building 17, No. A3,Fourth Industrial Zone,Heshuikou Community, Matian Street,Guangming District, Shenzhen,Guangdong P.R. China |
| **Name of Testing Laboratory preparing the Report.....:** | Ring Testing Technology (Zhongshan) Co., Ltd.<br>Room 203, 2nd Floor, Building D, Wanwei Lighting Plaza, No.59 Tongxing Road, Guzhen Town, Zhongshan City, China. |
| **Tested by (name, function, signature).....:** | Hank Zhong/<br>Engineer |
| **Approved by (name, function, signature)...:** | Jin Liang/<br>Project manger |

**Test specification:**

| | |
|---|---|
| **Standard.....:** | EN 62262:2002+A1:2021;<br>IEC 62262:2002+A1:2021 |
| **Test procedure.....:** | IK 08 test according to client requirement |
| **Testing period.....:** | 2024-07-10 to 2024-07-11 |
| **Non-standard test method.....:** | N/A |
| **Test item description.....:** | Solar Street Light |
| **Trade Mark.....:** | HeiSolar® |
| **Manufacturer.....:** | HeiSolar Energy Co.,Ltd.<br>Building 17, No. A3,Fourth Industrial Zone,Heshuikou Community, Matian Street,Guangming District, Shenzhen,Guangdong P.R. China |
| **Model/Type reference.....:** | FC-60, FC-120, W100 (more models refer to page 2 |
| **Ratings.....:** | Class III;IP66;<br>Other information see "model list" |
| **Remark / Note.....:** | All models have same electronic and mechanical structure, the differences between them were size and rated power.<br>After review, Model FC-120, FC-60 and W-100 were chosen to perform test. (For metal enclosures only) |

**General disclaimer:**

The test results presented in this report relate only to the object tested.
This report shall not be reproduced.

| IEC/EN 62262 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

**General product information and other remarks:**

1.Product covered by this report are class III Solar Street Light
2.All models have similar electronic and mechanical structure, the differences between were power and appearance. This test is for metal enclosures only.
3.Rating: Class III, IP66 detail see model list as below:

Model list

| Model Number | Picture | Power |
|---|---|---|
| FC-10 |  | 10w |
| FC-20 | | 20w |
| FC-30 | | 30w |
| FC-40 | | 40w |
| FC-50 | | 50w |
| FC-60 | | 60w |
| FC-40 |  | 40w |
| FC-50 | | 50w |
| FC-60 | | 60w |
| FC-80 | | 80w |
| FC-100 | | 100w |
| FC-120 | | 120w |
| W-20 |  | 20w |
| W-40 | | 40w |
| W-60 | | 60w |
| W-80 | | 80w |
| W-100 | | 100w |

| IEC/EN 62262 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

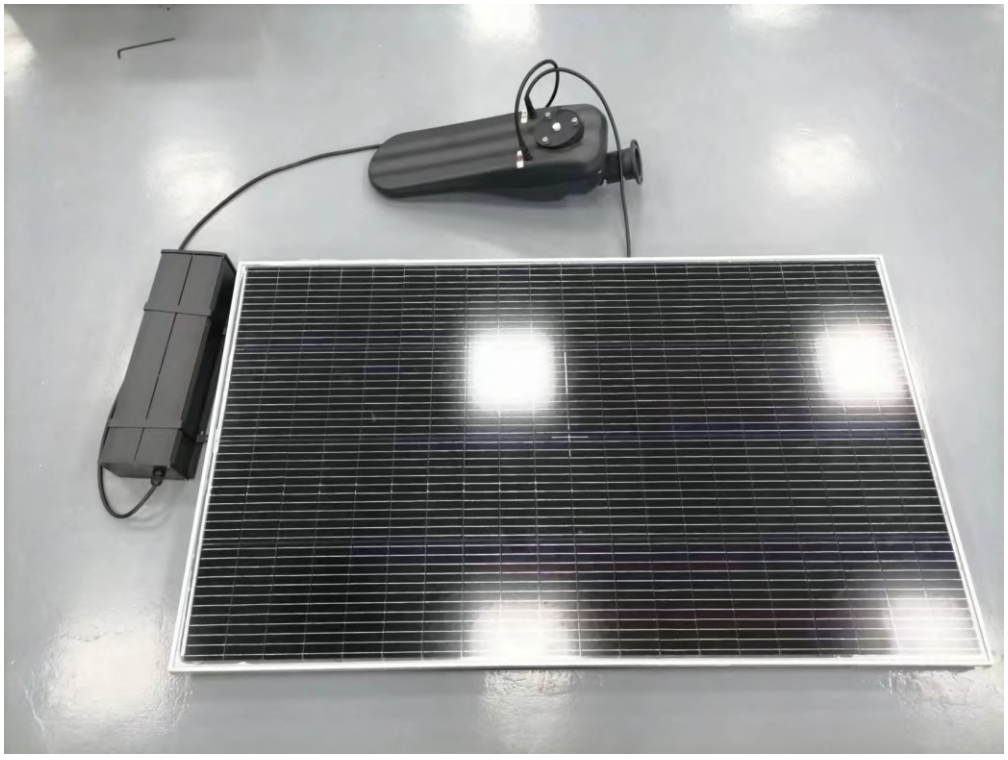
| | | | |
|---|---|---|---|
| **4** | **Designations** | | |
| 4.1 | Arrangement of the IK code | IK08 | — |
| 4.2 | Characteristic group numberals of the IK code and their meanings | IK08 | — |
| | Each characteristic group numberal represents an impact energy value as shown below:<br>IK code \| IK00 \| IK01 \| IK02 \| IK03 \| IK04 \| IK05 \| IK06 \| IK07 \| IK08 \| IK09 \| IK10<br>Impact energy, J \| * \| 0,14 \| 0,2 \| 0,35 \| 0,5 \| 0,7 \| 1 \| 2 \| 5 \| 10 \| 20<br>* Not protected according to this standard.<br>NOTE 1 When higher impact energy is required, the value of 50 J is recommended.<br>NOTE 2 A characteristic group numeral of two figures has been chosen to avoid confusion with some national standards which used a single numeral for a specific impact energy. | | — |
| 4.3 | Application of the IK code | | |
| | If parts of the enclosure have differing degrees of protection, they shall be indicated separately. | | — |
| **5** | **General requirements for tests** | | **P** |
| 5.1 | Atmospheric conditions for tests | | P |
| | - temperature range: 15℃ to 35℃, | 25℃ | P |
| | - air pressure: 86kPa to 106kPa, | 101kPa | P |
| | - altitude: less than 2000m. | ＜2000m | P |
| 5.2 | Enclosures under test | | |
| | Each enclosure under test shall be in a clean and new condition, complete with all its parts in palce unless otherwise specified in the relevant product standard. | Front enclosure<br>Back enclosure | P |
| 5.3 | Specifications to be given in the relevant product standard | | P |
| **6** | **Test to verify the prctection against mechincal impacts** | | **P** |
| 6.2 | Blows shall be applied to the enclosure to be tested. | | P |
| 6.3 | During the test the enclosure shall be mounted on a rigid support, according to the manufacturer's instructions for use. | | P |
| 6.4 | The number of impacts shall be five on each exposed face unless otherwise specified in the relevant product standard. | | P |
| | The impacts shall be evenly distributed on the faces of the enclosure(s) under test. | | P |
| | In no case shall more than three impacts be applied in the surroudings of the same point of the enclosure. The relevant product standard shall specify the points of application of impacts. | Front enclosure;<br>Back enclosure.<br>5J;3 times/piece | P |
| 6.5 | Test evaluation | | P |
| | The relevant product standard shall specify the criteria upon which the acceptance or rejection of the enclosure is to be based, particularly | | P |
| | - admissible damages, | | P |
| | - verification criteria relevant to the continuity of the safety and reliability of the equipment | Comply with IEC/EN 60598-1 | P |
| **7** | **Test apparatus** | | |

| IEC/EN 62262 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | The test shall be done by using on of the test apparatus described in IEC 60068-2-75. | Vertical hammer used | P |

Note:
P(Pass): means test object does meet the requirement:
F(Fail): means test object does not meet the requirement
N/A: means the clause is not applicable for the appliance
N/C: means the clause is not checked on the appliance

Appendix: product photo:

Overall view for FC-120



Back view for FC-120

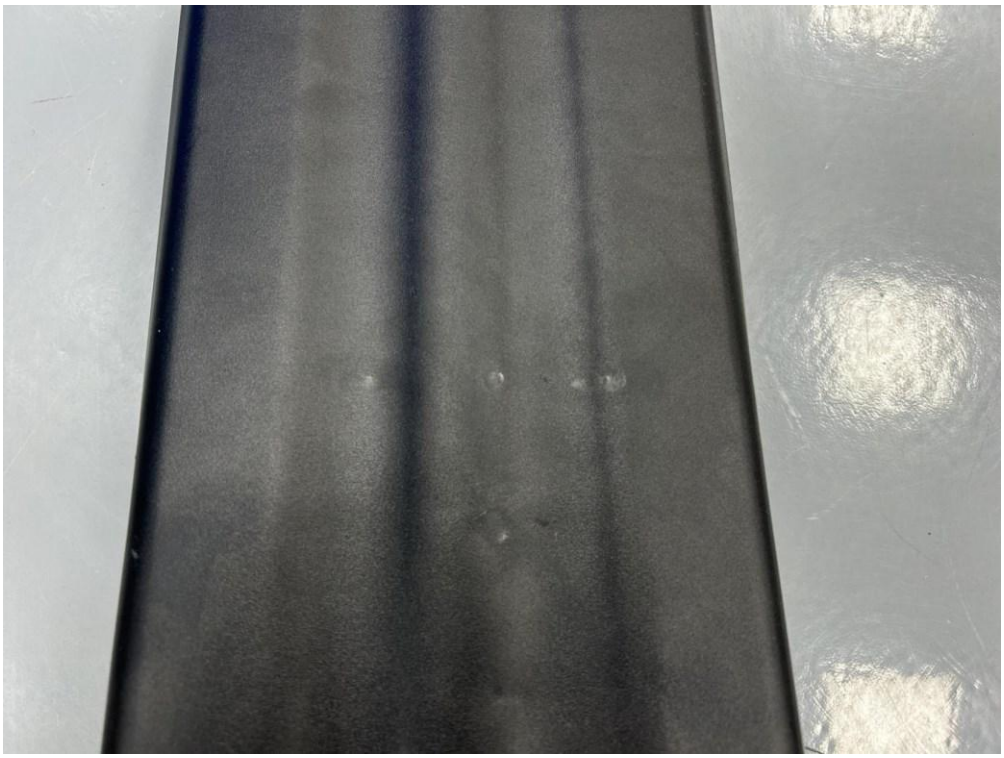
Appendix: product photo:

Overall view for FC-120(Lamp body)

Rear view for FC-120(Lamp body)

Appendix: product photo:

Back enclosure view for FC-120(Before test)



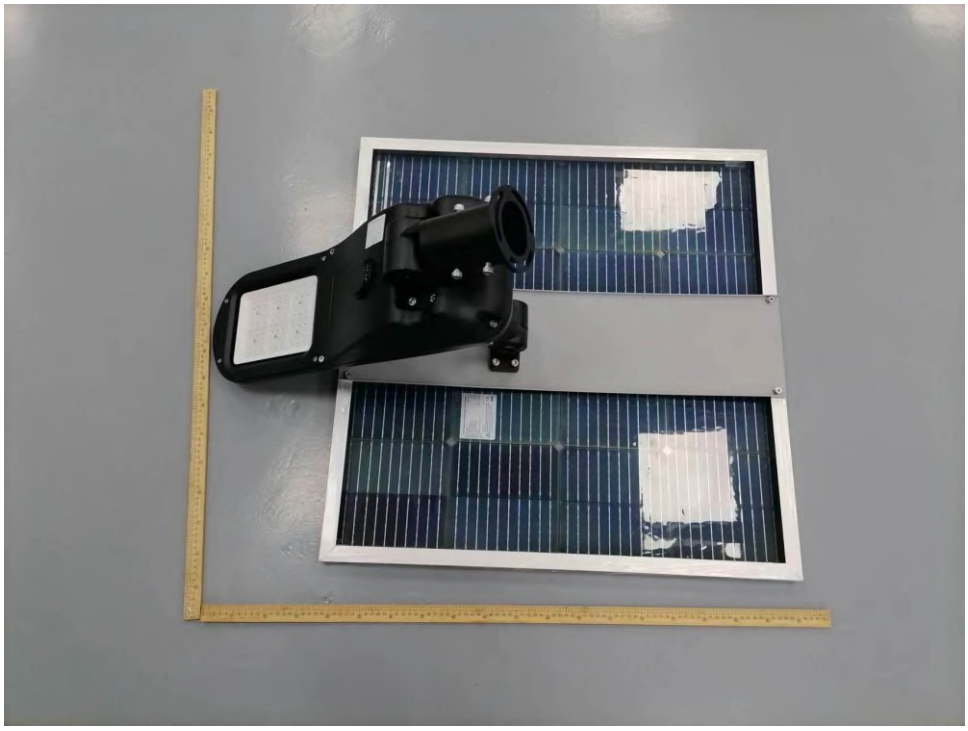
Back enclosure view for FC-120(After test)

Appendix: product photo:

Front enclosure view for FC-120(Before test)

Front enclosure view for FC-120(Before test)

Appendix: product photo:



Overall view for FC-60

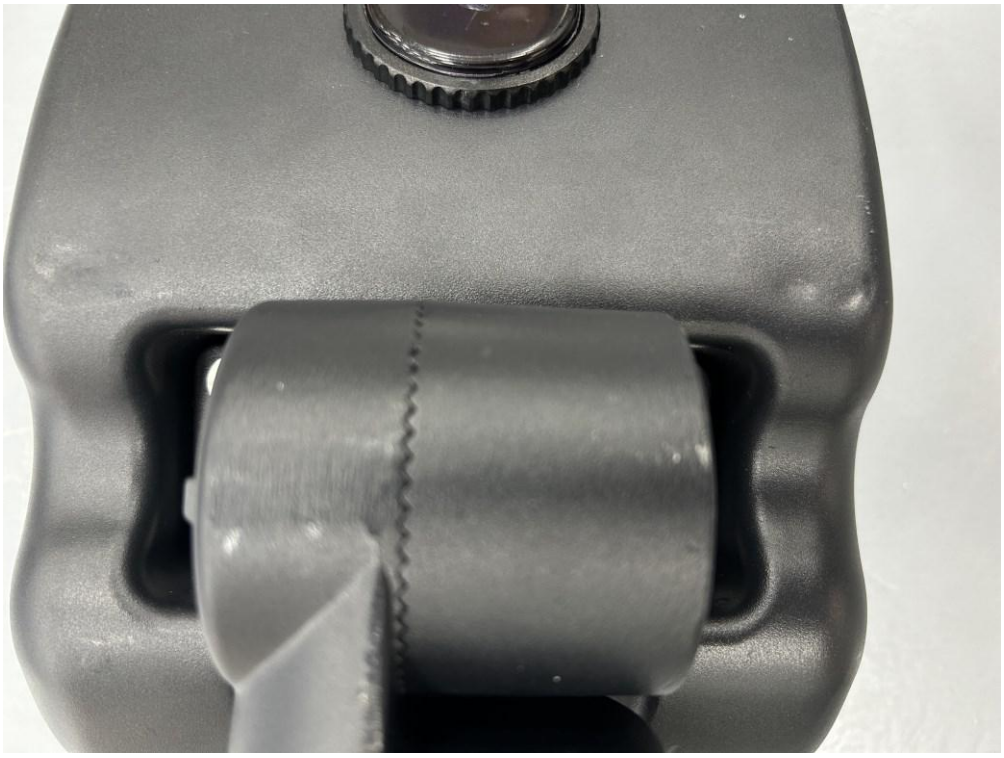
Overall view for FC-60(Lamp)

Appendix: product photo:

Back view for FC-60(Lamp)

Front enclosure view for FC-60(Before test)

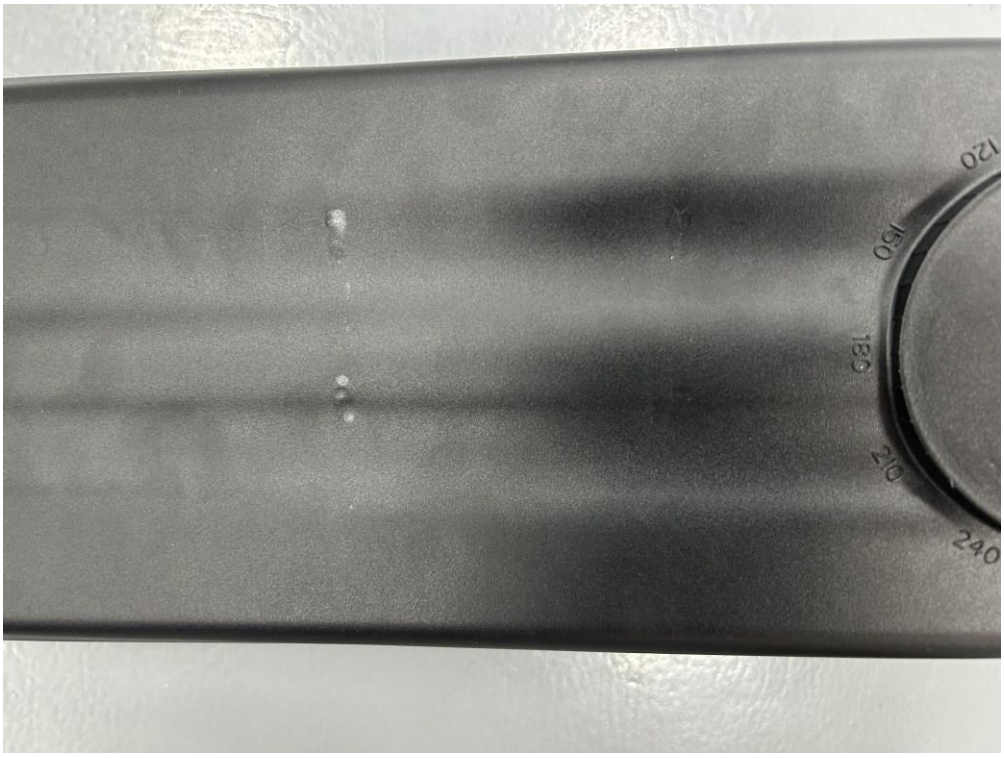
Appendix: product photo:



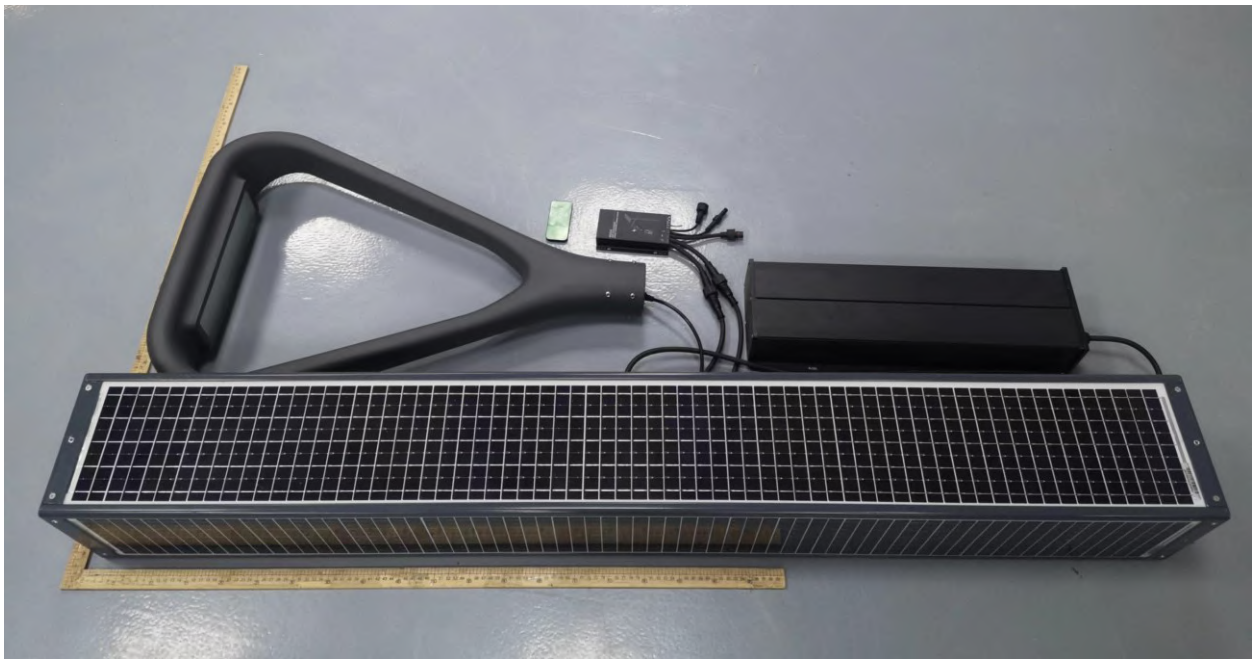
Front enclosure view for FC-60(After test)

Back enclosure view for FC-60(Before test)

Appendix: product photo:



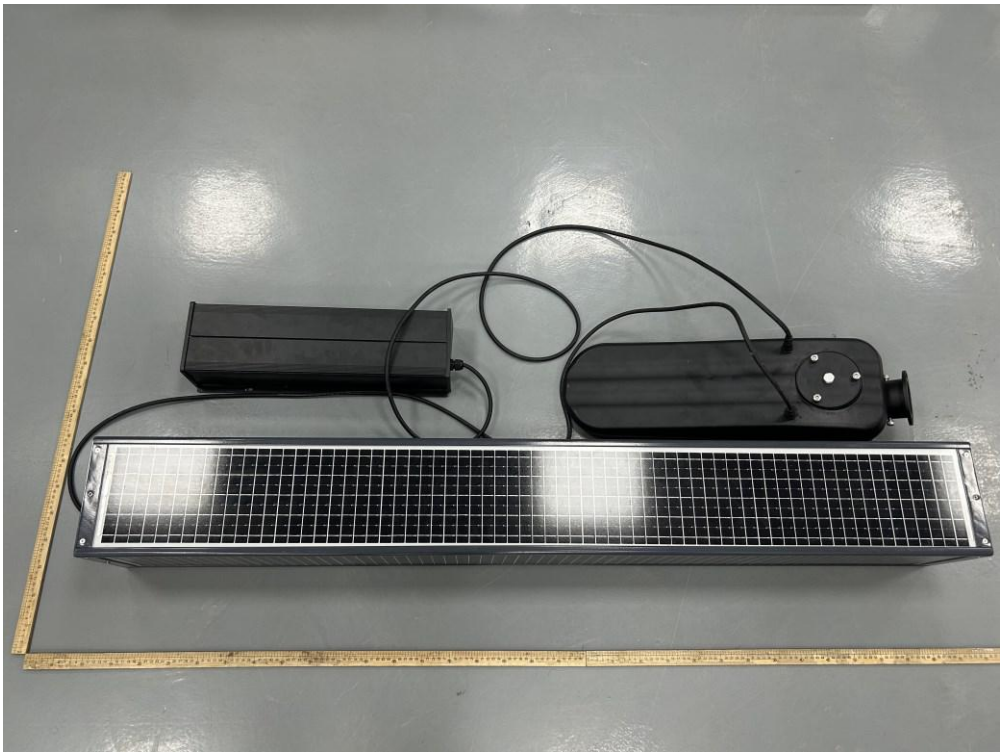

Back enclosure view for FC-60(After test)



Overall view for W-100

(Battery pack same as FC-120)

Appendix: product photo:



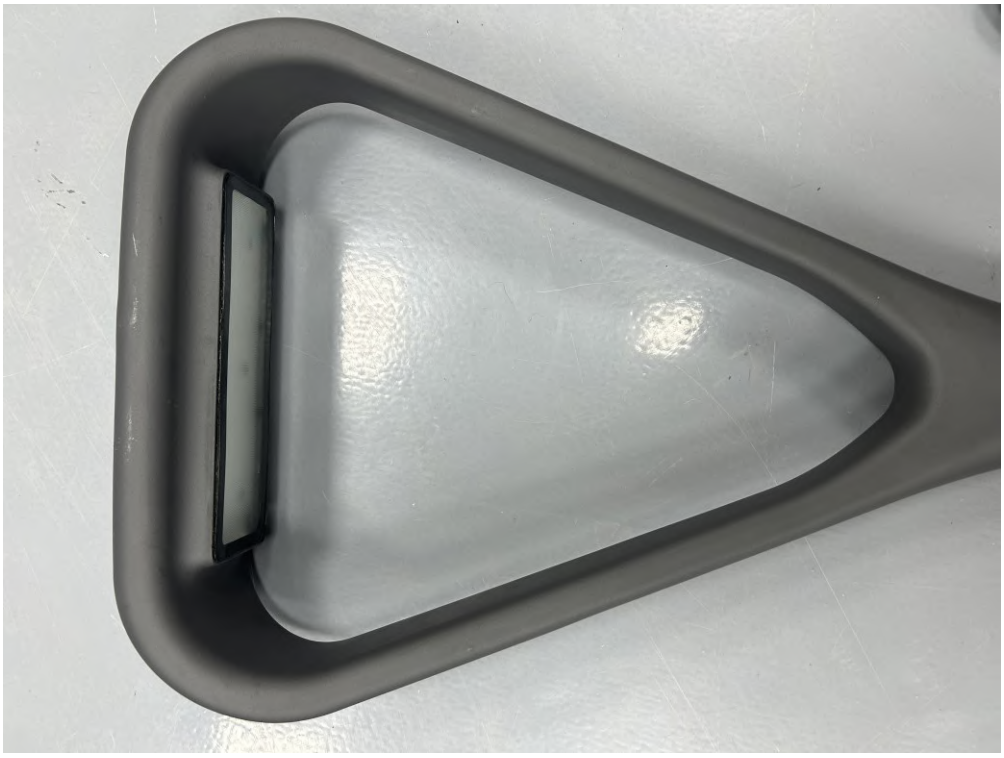
Supplementary view for W-100

(The photovoltaic panel can be adapted to the battery pack and lamp body of the FC-120)

Overall view for W-100(Lamp body)

Appendix: product photo:

Enclosure view for W-100(Before test)



Enclosure view for W-100(After test)

---End of the report---

Ref. Certif. No.

DE 2-042629

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

# CB TEST CERTIFICATE

| | |
|---|---|
| Product | Solar Street Light |
| Name and address of the applicant | HeiSolar Energy Co.,Ltd.<br>Building 17, No. A3,<br>Fourth Industrial Zone, Heshuikou Community, Matian Street,<br>Guangming District, Shenzhen, Guangdong, P.R. China |
| Name and address of the manufacturer | Shenzhen Angelila Optoel Iectronics Co.,Ltd<br>4/F, Building B, Hongchengrui Industrial<br>Park, Tangwei Community, Gongming, Street, Guangming New<br>District, Shenzhen, 518000 Guangdong, P.R. China |
| Name and address of the factory | Shenzhen Angelila Optoel Iectronics Co.,Ltd<br>4/F, Building B, Hongchengrui Industrial<br>Park, Tangwei Community, Gongming, Street, Guangming New<br>District, Shenzhen, 518000 Guangdong, P.R. China |
| Ratings and principal characteristics | Class III, IP66, ta 50°C, 3000K/4000K/6000K<br>For rated power, refer to the test report. |
| Trademark (if any) | HeiSolar |
| Customer's Testing Facility (CTF) Stage used | N/A |
| Model / Type Ref. | FC-10, FC-20, FC-30, FC-40, FC-50, FC-60, FC-80,<br>FC-100, FC-120, W-20, W-40, W-60, W-80, W-100 |
| Additional information (if necessary may also be reported on page 2) | For model differences, refer to the test report. |
| A sample of the product was tested and found to be in conformity with | IEC 60598-2-3:2002+A1<br>IEC 60598-1:2020 |
| As shown in the Test Report Ref. No. which forms part of this Certificate | CN244NBW 001 |

This CB Test Certificate is issued by the National Certification Body

TÜVRheinland®

TÜV Rheinland LGA Products GmbH
Tillystr. 2, 90431 Nürnberg, Germany
Phone + 49 221 806-1371
Fax + 49 221 806-3935
Mail: cert-validity@de.tuv.com
Web : www.tuv.com

Date: 2024-08-30

Signature: Eileen Feng

10/061 CB 06/20v9 rk