



TEST REPORT

REPORT NO.: 190703677RT

PRODUCT: Solar Grid-tied Inverter

RECEIVED: 2019.07.03

TESTED: 2019.07.25~2019.07.29

ISSUED: 2019.08.14

APPLICANT: EVOLVE ENERGY GROUP CO., LIMITED

ADDRESS: RM 702, 7/F FU FAI COMM CTR 27
HILLIER ST SHEUNG WAN, HK

Lab information:

**Bureau Veritas Consumer Products Services
(Guangzhou) Co., Ltd, Science City Branch**

Rm.101,G5 Building,South China Advanced
Materials Innovation Park,No.31 Kefeng Rd,
Guangzhou Science City, Guangzhou, 510663
Tel: +86-20-87148500 Fax: +86-20-87148528
Email: bvcpstech.GZ@cn.bureauveritas.com
Website:cps.bureauveritas.com

This test report consists of 11 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by A2LA, CNAS or any government agencies. The test results in the report only apply to the tested sample. The test results in this report are traceable to the national or international standards. . Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.

Table of Contents

| | | |
|-----|-------------------------------------|----|
| 1 | REGULATION..... | 3 |
| 2 | SUMMARY OF TEST RESULTS | 4 |
| 3 | GENERAL INFORMATION..... | 4 |
| 3.1 | GENERAL DESCRIPTION OF EUT | 4 |
| 4 | LOW TEMPERATURE TEST | 4 |
| 4.1 | TEST SAMPLE NO. AND TEST DATE | 4 |
| 4.2 | TEST CONDITIONS | 4 |
| 4.1 | TEST REQUIREMENTS..... | 4 |
| 4.2 | TEST RESULT..... | 4 |
| 4.3 | TEST EQUIPMENTS..... | 5 |
| 4.4 | TEST PHOTO..... | 5 |
| 5 | HIGH TEMPERATURE TEST..... | 5 |
| 5.1 | TEST SAMPLE NO. AND TEST DATE | 5 |
| 5.2 | TEST CONDITIONS | 5 |
| 5.3 | TEST REQUIREMENTS..... | 6 |
| 5.4 | TEST RESULT..... | 6 |
| 5.5 | TEST EQUIPMENTS..... | 6 |
| 5.6 | TEST PHOTO..... | 6 |
| 6 | CHANGE OF TEMPERATURE TEST | 7 |
| 6.1 | TEST SAMPLE NO. AND TEST DATE | 7 |
| 6.2 | TEST CONDITIONS | 7 |
| 6.3 | TEST REQUIREMENTS..... | 7 |
| 6.4 | TEST RESULT..... | 7 |
| 6.5 | TEST EQUIPMENTS..... | 7 |
| 6.6 | TEST PHOTO..... | 7 |
| 7 | DAMP HEAT CYCLIC TEST..... | 8 |
| 7.1 | TEST SAMPLE NO. AND TEST DATE | 8 |
| 7.2 | TEST CONDITIONS | 8 |
| 7.3 | TEST REQUIREMENTS..... | 9 |
| 7.4 | TEST RESULT..... | 9 |
| 7.5 | TEST EQUIPMENTS..... | 9 |
| 7.6 | TEST PHOTO..... | 10 |
| 8 | PHOTOGRAPHS OF DUT..... | 11 |



**BUREAU
VERITAS**

1 REGULATION

REPORT NO.:190703677RT

PRODUCT: Solar Grid-tied Inverter

PART NO.: EVVO 50000TL3P,EVVO 60000TL3P,EVVO 70000TL3P-HV

MANUFACTURER: /

APPLICANT: EVOLVE ENERGY GROUP CO., LIMITED

TESTED: 2019.07.25~2019.07.29

STANDARDS: IEC 60068-2-1:2007; IEC 60068-2-2:2007; IEC 60068-2-14:2009; IEC 60068-2-30:2005

The above equipment has been tested by Bureau Veritas Consumer Products Services (Guangzhou) Co., Ltd , Science City Branch, The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's Reliability characteristics under the conditions specified in this report.

PREPARED BY : Mike Zhu , **DATE:** 2019.08.14
(Mike Zhu / Project Engineer)

VERIFIED BY : Jet Ruan , **DATE:** 2019.8.14
(Jet Ruan / Project Manager)

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.



2 SUMMARY OF TEST RESULTS

| TEST ITEMS | STANDARD | SAMPLE NO. | TEST RESULT |
|-------------------------------|------------------------|-------------------------|-------------------------|
| Low temperature test | IEC 60068-2-1:2007 | GZ190703/001-Q01N01GZ99 | Refer to section 4.4 |
| High temperature test | IEC 60068-2-2:2007 | | Refer to section 5.4 |
| Change of temperature test | IEC 60068-2-14:2009 | | Refer to section 6.4 |
| Damp heat cyclic test | IEC 60068-2-30:2005 | | Refer to section 7.4 |

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

| | |
|-----------------|---|
| PRODUCT | Solar Grid-tied Inverter |
| PART NO. | EVVO 50000TL3P, EVVO 60000TL3P, EVVO 70000TL3P-HV |

4 LOW TEMPERATURE TEST

Reference to: IEC 60068-2-1:2007

4.1 TEST SAMPLE NO. AND TEST DATE

| | |
|-----------------|-------------------------|
| Sample No. | GZ190703/001-Q01N01GZ99 |
| Sample quantity | 1 PCS |
| Test date | 2019.07.25~2019.07.26 |

4.2 TEST CONDITIONS

Temperature: $(-25 \pm 2)^\circ\text{C}$

Rate of temperature change: $1^\circ\text{C}/\text{min}$

Test duration: 16h

4.1 TEST REQUIREMENTS

After test, the sample should no external physical damage.

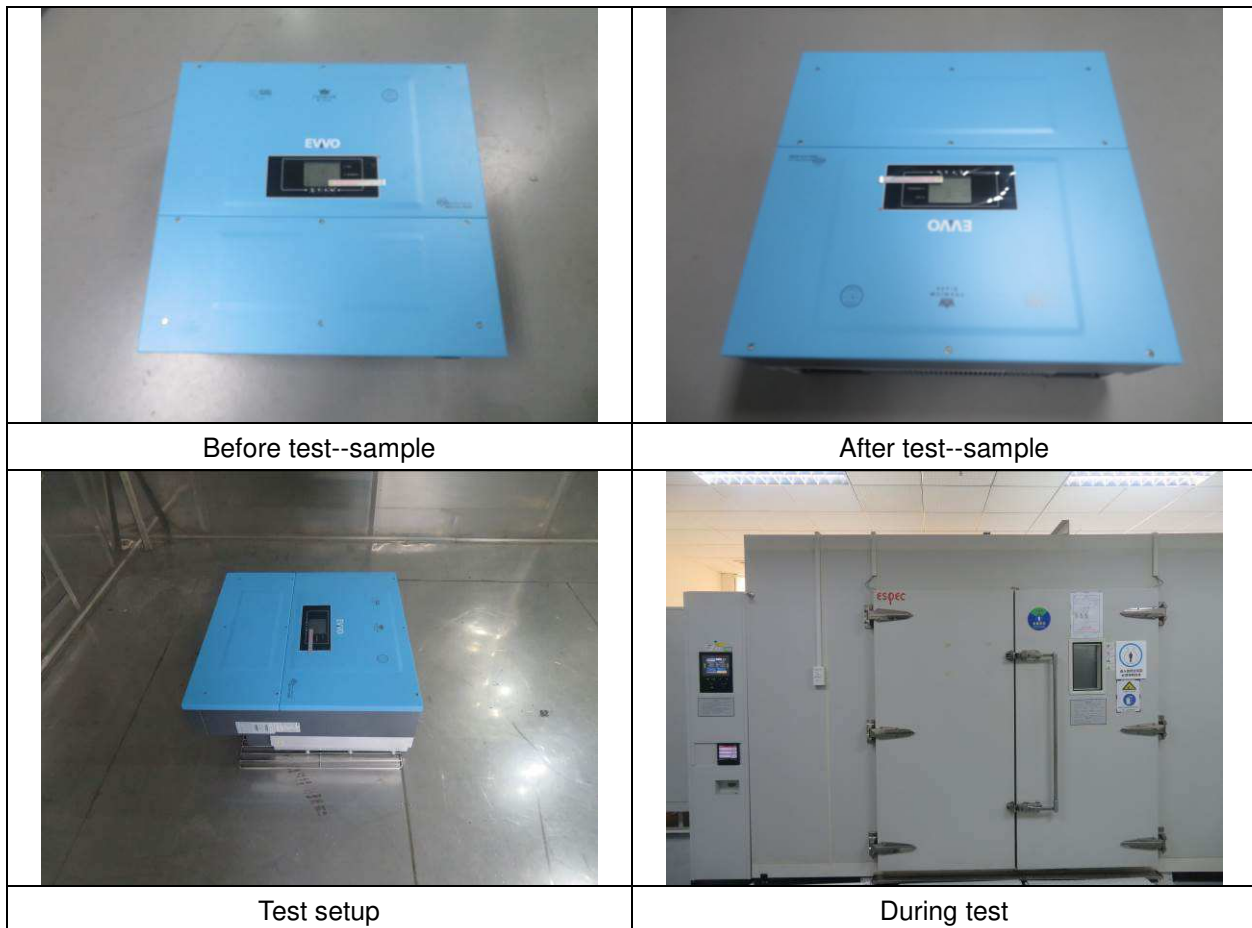
4.2 TEST RESULT

| Sample No. | Test result |
|-------------------------|---|
| GZ190703/001-Q01N01GZ99 | After test, the sample no external physical damage. |

4.3 TEST EQUIPMENTS

| EQUIPMENT NAME | EQUIPMENT MODE | EQUIPMENT NO. | CALIBRATION DUE |
|--------------------------------------|----------------|---------------|-----------------|
| Low temperature and humidity cabinet | SEWTH-Z-250LHS | BVGZ-RT-0006 | 2019.09.12 |

4.4 TEST PHOTO



5 HIGH TEMPERATURE TEST

Reference to: IEC 60068-2-2:2007

5.1 TEST SAMPLE NO. AND TEST DATE

| | |
|-----------------|-------------------------|
| Sample No. | GZ190703/001-Q01N01GZ99 |
| Sample quantity | 1 PCS |
| Test date | 2019.07.26~2019.07.27 |

5.2 TEST CONDITIONS

Temperature:(60±2)°C

Rate of temperature change:1°C/min

Test duration: 16h

Recovery: 1h

5.3 TEST REQUIREMENTS

After test, the sample should no external physical damage.

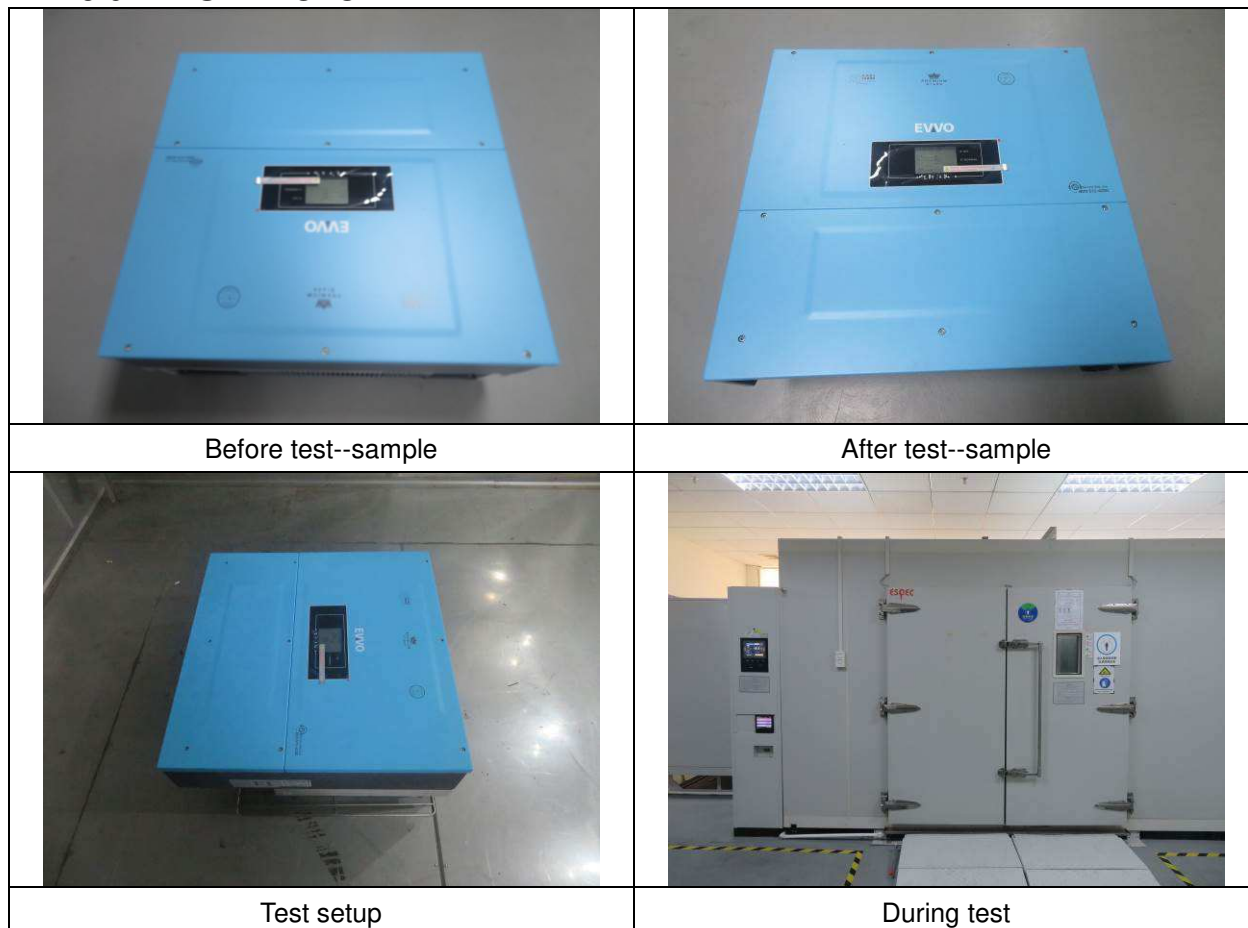
5.4 TEST RESULT

| Sample No. | Test result |
|-------------------------|---|
| GZ190703/001-Q01N01GZ99 | After test, the sample no external physical damage. |

5.5 TEST EQUIPMENTS

| EQUIPMENT NAME | EQUIPMENT MODE | EQUIPMENT NO. | CALIBRATION DUE |
|--------------------------------------|----------------|---------------|-----------------|
| Low temperature and humidity cabinet | SEWTH-Z-250LHS | BVGZ-RT-0006 | 2019.09.12 |

5.6 TEST PHOTO



6 CHANGE OF TEMPERATURE TEST

Reference to: IEC 60068-2-14:2009

6.1 TEST SAMPLE NO. AND TEST DATE

| | |
|-----------------|-------------------------|
| Sample No. | GZ190703/001-Q01N01GZ99 |
| Sample quantity | 1 PCS |
| Test date | 2019.07.27~2019.07.28 |

6.2 TEST CONDITIONS

Low temperature extreme: $(-25\pm 2)^{\circ}\text{C}$
 high temperature extreme: $(60\pm 2)^{\circ}\text{C}$
 Rate of temperature change: $1^{\circ}\text{C}/\text{min}$
 Dwell time: 3h for each temperature extremes
 Number of cycles: 1 cycle

6.3 TEST REQUIREMENTS

After test, the sample should no external physical damage.

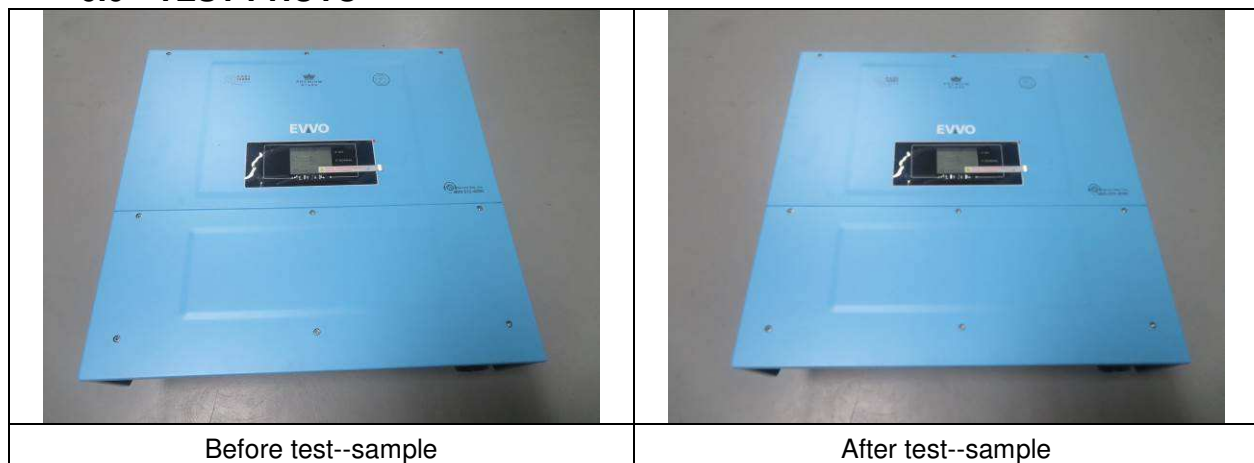
6.4 TEST RESULT

| | |
|-------------------------|---|
| Sample No. | Test result |
| GZ190703/001-Q01N01GZ99 | After test, the sample no external physical damage. |

6.5 TEST EQUIPMENTS

| EQUIPMENT NAME | EQUIPMENT MODE | EQUIPMENT NO. | CALIBRATION DUE |
|--------------------------------------|----------------|---------------|-----------------|
| Low temperature and humidity cabinet | SEWTH-Z-250LHS | BVGZ-RT-0006 | 2019.09.12 |

6.6 TEST PHOTO





7 DAMP HEAT CYCLIC TEST

Reference to: IEC 60068-2-30:2005

7.1 TEST SAMPLE NO. AND TEST DATE

| | |
|-----------------|-------------------------|
| Sample No. | GZ190703/001-Q01N01GZ99 |
| Sample quantity | 1 PCS |
| Test date | 2019.07.28~2019.07.29 |

7.2 TEST CONDITIONS

Temperature parameter and relative humidity according to figure 2a:

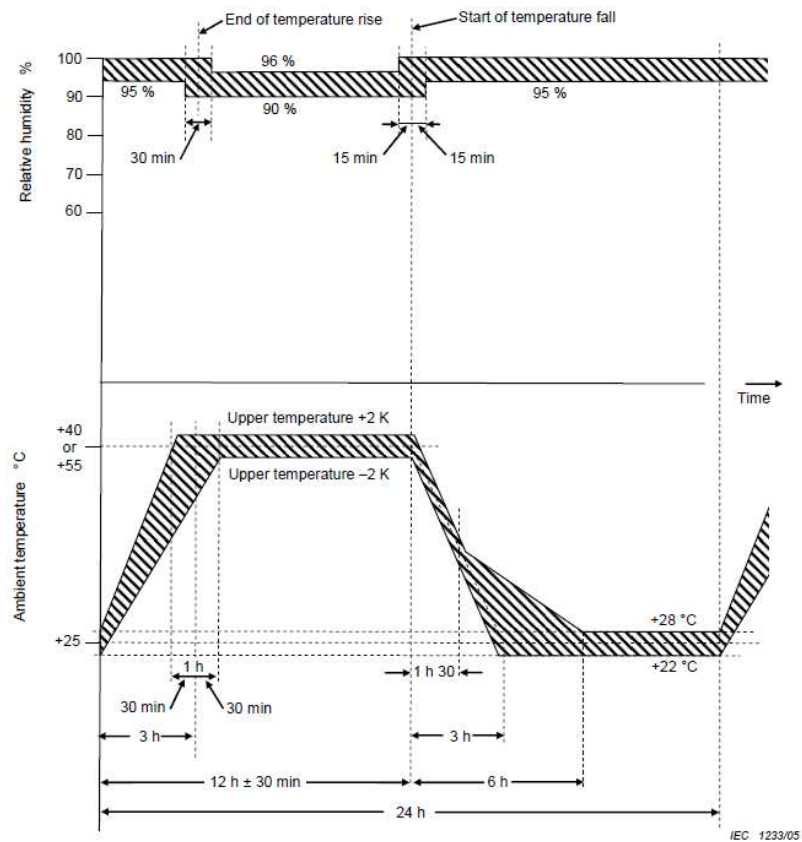


Figure 2a – Test Db – Test cycle – Variant 1

Upper temperature:55°C
 Number of cycles: 1

7.3 TEST REQUIREMENTS

After test, the sample should no external physical damage.

7.4 TEST RESULT

| Sample No. | Test result |
|-------------------------|---|
| GZ190703/001-Q01N01GZ99 | After test, the sample no external physical damage. |

7.5 TEST EQUIPMENTS





| EQUIPMENT NAME | EQUIPMENT MODE | EQUIPMENT NO. | CALIBRATION DUE |
|--------------------------------------|----------------|---------------|-----------------|
| Low temperature and humidity cabinet | SEWTH-Z-250LHS | BVGZ-RT-0006 | 2019.09.12 |



**BUREAU
VERITAS**

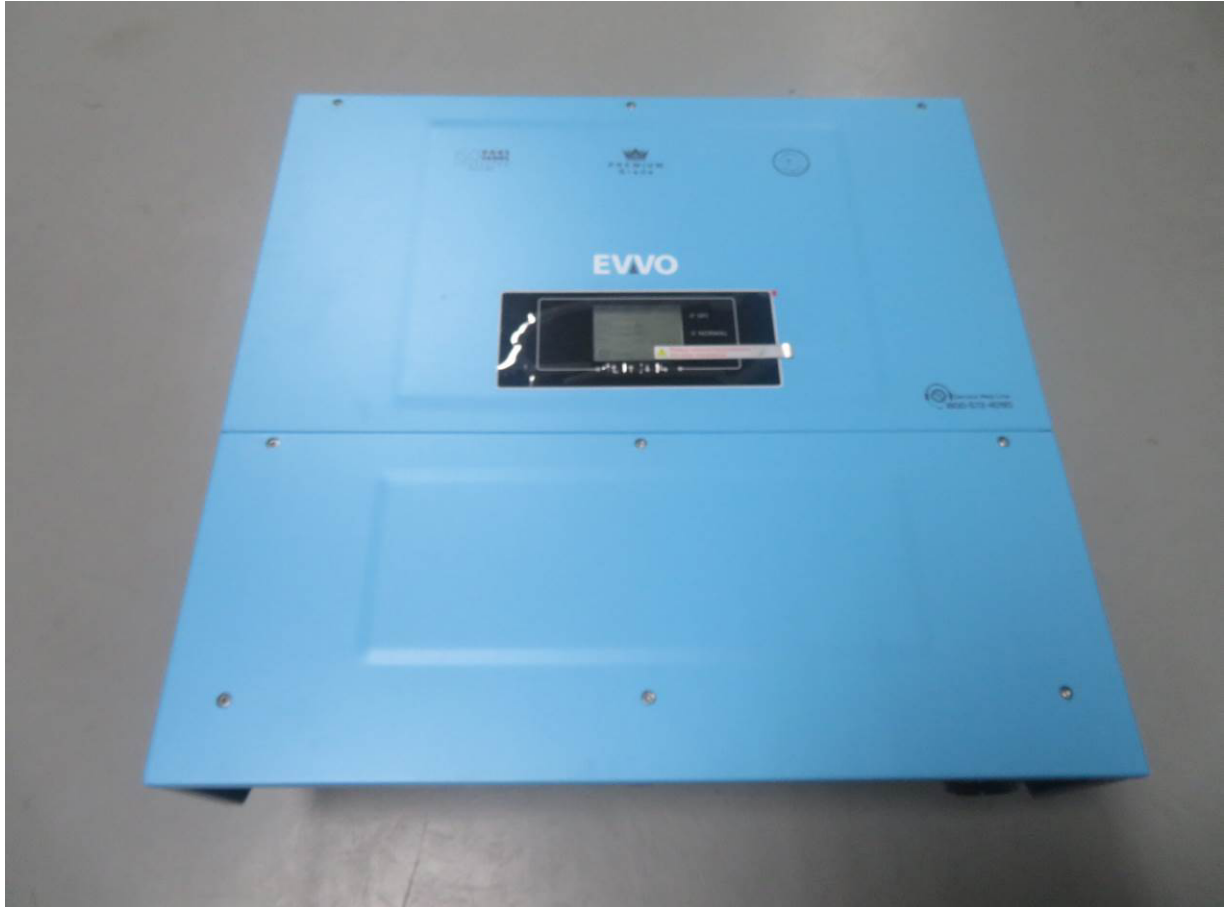
REPORT NO.:190703677RT

7.6 TEST PHOTO

| | |
|--|---|
|  |  |
| <p>Before test--sample</p> | <p>After test--sample</p> |
|  |  |
| <p>Test setup</p> | <p>During test</p> |



8 PHOTOGRAPHS OF DUT



--- END ---