

## ROHS TEST REPORT

Report Reference No.....: **ZKT-2106102489R**

Date of issue.....: Jun. 11, 2021

Total number of pages..... 14

Testing Laboratory.....: **Shenzhen ZKT Technology Co., Ltd.**

Address.....: 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

Applicant's name.....: **Huazhou Hongsheng Technology Co. , Ltd.**

Address.....: Kwai Chung Village, Xiaguo District, Huazhou

Manufacturer's name .....: **HUAZHOU GUOXIN ELECTRONICS CO.,LTD**

Address .....: 10meters road, Jiangshan Trade City District, Jian Jiang District, Huagzhou,Guangdong, China

### Test Requested:

### Conclusion

(1) RoHS Directive 2011/65/EU Annex II amending Annex (EU)2015/863 and amending Annex (EU)2017/2102  
—Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs and PBDEs Content  
—Di-(2-ethylhexyl) phthalate(DEHP), Benzylbutyl phthalate(BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate(DIBP) Content

PASS

Test Report Form No.....: --

Test Report Form(s) Originator.....: ZKT Testing

Master TRF.....: Dated: 2017-06

**This test report is specially limited to the above client company and product model only. It may not be duplicated without prior written consent of ZKT Test.**

Test item description.....: **Pure Sine Wave Inverter**

Trade Mark.....: N/A

Model/Type reference.....: 3000W,

12V/24V/48V/60V/72V

100W/150W/200W/300W/500W/600W/800W/1000W/1200W/1

500W/1600W/2000W/2200W/2500W

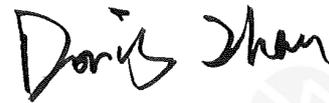
**Testing procedure and testing location:**

**Testing Laboratory.....: Shenzhen ZKT Technology Co., Ltd.**

**Address.....: 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China**

**Date of Test.....: Jun. 01, 2021- Jun. 11, 2021**

**Tested by (name + signature).....: Doris Zhan**



**Reviewer (name + signature).....: Simon Gong**



**Approved (name + signature).....: Awen He**



## 2. Test Item Description And Photo List

Sample No.	Description
001	PCB
002	TIN
003	IC
004	SMD CAPACITOR
005	SMD RESISTOR
006	SMD DIODE
007	SMD GLASS DIODES
008	SMD TRANSISTOR
009	SMD INDUCTOR
010	BRIDGE
011	OPTOCOUPLER
012	FUSE
013	METAL FILM FIXED RESISTORS
014	PIN HEADER
015	SMD MOSFET
016	INFRARED RECEIVER
017	Y CAPACITOR
018	X CAPACITOR
019	ALUMINUM ELECTROLYTIC CAPACITORS
020	TRANSFORMER-BOBBIN
021	TRANSFORMER-CORE
022	TRANSFORMER-YELLOW TAPE
023	TRANSFORMER- ENAMELLED ROUND COPPER WIRE
024	ENAMELLED ROUND COPPER WIRE
025	THREE LAYERS OF INSULATION
026	TRANSFORMER-TEFLON WHITE TUBE
027	LINE CHOKE-COPPER WIRE

028	RED WIRE
029	BLACK WIRE
030	YELLOW WIRE
031	SCREW
032	APPLIANCE INLET
033	SLIVERY METAL

### 3. Test Results

#### 3.1 Screening test for the specified hazardous substances of RoHS for the selected materials of the submitted sample:

- Heavy Metal (Cadmium, Chromium, Mercury, Lead) Content Test
- Bromine Content Test

According to IEC 62321-3-1:2013, and Quantification analyzed with Energy Dispersive X-ray Fluorescence Spectrometers.

Sample No.	Total Cadmium	Total Lead	Total Mercury	Total Chromium	Total Bromine
Sample 001	BL	BL	BL	BL	BL
Sample 002	BL	BL	BL	BL	N.A.
Sample 003	BL	BL	BL	BL	N.A.
Sample 004	BL	BL	BL	BL	BL
Sample 005	BL	BL	BL	BL	BL
Sample 006	BL	BL	BL	BL	BL
Sample 007	BL	BL	BL	BL	BL
Sample 008	BL	BL	BL	BL	BL
Sample 009	BL	BL	BL	BL	BL
Sample 010	BL	BL	BL	BL	BL
Sample 011	BL	BL	BL	BL	BL
Sample 012	BL	BL	BL	BL	BL
Sample 013	BL	BL	BL	BL	BL
Sample 014	BL	BL	BL	BL	BL
Sample 015	BL	BL	BL	BL	BL
Sample 016	BL	BL	BL	BL	BL
Sample 017	BL	BL	BL	BL	BL
Sample 018	BL	BL	BL	BL	BL
Sample 019	BL	BL	BL	BL	BL
Sample 020	BL	BL	BL	BL	BL
Sample 021	BL	BL	BL	BL	BL
Sample 022	BL	BL	BL	BL	BL
Sample 023	BL	BL	BL	BL	BL
Sample 024	BL	BL	BL	BL	BL
Sample 025	BL	BL	BL	BL	BL
Sample 026	BL	BL	BL	BL	BL
Sample 027	BL	BL	BL	BL	BL
Sample 028	BL	BL	BL	BL	BL
Sample 029	BL	BL	BL	BL	BL

Sample 030	BL	BL	BL	BL	BL
Sample 031	BL	BL	BL	BL	N.A.
Sample 032	BL	BL	BL	BL	BL
Sample 033	BL	BL	BL	BL	N.A.

**Note:**

All Concentrations express in “mg/kg” (milligram per kilogram), mg/kg ~ ppm

“OL” denotes “over limit”

“BL” denotes “below limit”

“N.A.” denotes “Not Applicable”

“Inconclusive” denotes result is intermediate between “OL” and “BL”

“A” denotes the screening result was inconclusive(X) or over limit (OL), thus further confirmation test was conducted, results are listed in 3.2 and 3.3.

XRF screening limits for different materials:

Materials	Concentration (mg/kg)				
	Cd	Cr	Pb	Hg	Br
<b>Metal</b>	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	N.A.
<b>Polymers</b>	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (300-3\sigma) < X$
<b>Composite material</b>	$BL \leq (50-3\sigma) < X < (150+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$	$BL \leq (250-3\sigma) < X$

### 3. 2 Test for Heavy Metals

Lead, Cadmium, Hexavalent Chromium and Mercury Tests according to IEC 62321-4:2013+A1:2017 & IEC 62321-5:2013 & IEC 62321-7-1:2015 & IEC 62321-7-2:2017, Analysis was conducted by ICP-OES, UV-VIS.

Element	Total Cadmium [mg/kg]	Total Lead [mg/kg]	Total Mercury [mg/kg]	Hexavalent Chromium [ $\mu\text{g}/\text{cm}^2$ ]	Hexavalent Chromium [mg/kg]
Detection Limit	5	5	5	0.10	5
Limit	100	1000	1000	0.10	1000

Note:

- All Concentrations express in "mg/kg"(milligram per kilogram), mg/kg ~ ppm.
- "N.D." = "Not Detected".
- Boiling-water-extraction:  
 Negative = Absence of Cr(VI) coating / surface layer: the detected concentration in boiling-water-extraction solution is less than  $0.10\mu\text{g}$  with  $1\text{cm}^2$  sample surface area. Positive = Presence of Cr(VI) coating / surface layer: the detected concentration in boiling-water-extraction solution is greater than  $0.13\mu\text{g}$  with  $1\text{cm}^2$  sample surface area.  
 Inconclusive = the detected concentration in boiling-water-extraction solution is greater than  $0.10\mu\text{g}$  and less than  $0.13\mu\text{g}$  with  $1\text{cm}^2$  sample surface area.
- Positive = result be regarded as not comply with RoHS requirement  
 Negative = result be regarded as comply with RoHS requirement
- "-" = Not regulated

### 3. 3 Test for Flame retardants

**Test Method: With reference to IEC 62321-6:2015, extracted by toluene and analyzed by Gas Chromatography and Mass Spectrometry (GC-MS). [Reporting Limit: 5mg/kg]**

Test Item		Result [mg/kg]	RoHS Requirement [mg/kg]
		Sample 001	
PBBs	Monobromobiphenyl	< 5	Sum of PBBs < 1000
	Dibromobiphenyl	< 5	
	Tribromobiphenyl	< 5	
	Tetrabromobiphenyl	< 5	
	Pentabromobiphenyl	< 5	
	Hexabromobiphenyl	< 5	
	Heptabromobiphenyl	< 5	
	Octabromobiphenyl	< 5	
	Nonabromobiphenyl	< 5	
	Decabromobiphenyl	< 5	
	Sum of PBBs	< 5	
PBDEs	Monobromodiphenyl Ether	< 5	Sum of PBDEs < 1000
	Dibromodiphenyl Ether	< 5	
	Tribromodiphenyl Ether	< 5	
	Tetrabromodiphenyl Ether	< 5	
	Pentabromodiphenyl Ether	< 5	
	Hexabromodiphenyl Ether	< 5	
	Heptabromodiphenyl Ether	< 5	
	Octabromodiphenyl Ether	< 5	
	Nonabromodiphenyl Ether	< 5	
	Decabromodiphenyl Ether	< 5	
	Sum of PBDEs	< 5	

Note:

1. All Concentrations express in "mg/kg" (milligram per kilogram), mg/kg ~ ppm.
2. "<" denotes less than

### 3.4 Di-(2-ethylhexyl) phthalate(DEHP), Benzylbutyl phthalate(BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP) Content—RoHS Directive 2011/65/EU Annex II amending Annex (EU)2017/2102

Test method: With reference to IEC 62321-8:2017; Analysis was conducted by GC-MS.

Element	Di-(2-ethylhexyl) phthalate (DEHP) [mg/kg]	Benzylbutyl phthalate (BBP) [mg/kg]	Dibutyl phthalate (DBP) [mg/kg]	Diisobutyl phthalate(DIBP) [mg/kg]
<b>Detection Limit</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>
<b>Limit</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>
Sample 001	N.D.	N.D.	N.D.	N.D.
Sample 004	N.D.	N.D.	N.D.	N.D.
Sample 005	N.D.	N.D.	N.D.	N.D.
Sample 006	N.D.	N.D.	N.D.	N.D.
Sample 007	N.D.	N.D.	N.D.	N.D.
Sample 008	N.D.	N.D.	N.D.	N.D.
Sample 009	N.D.	N.D.	N.D.	N.D.
Sample 010	N.D.	N.D.	N.D.	N.D.
Sample 011	N.D.	N.D.	N.D.	N.D.
Sample 012	N.D.	N.D.	N.D.	N.D.
Sample 013	N.D.	N.D.	N.D.	N.D.
Sample 014	N.D.	N.D.	N.D.	N.D.
Sample 015	N.D.	N.D.	N.D.	N.D.
Sample 016	N.D.	N.D.	N.D.	N.D.
Sample 017	N.D.	N.D.	N.D.	N.D.
Sample 018	N.D.	N.D.	N.D.	N.D.
Sample 019	N.D.	N.D.	N.D.	N.D.
Sample 021	N.D.	N.D.	N.D.	N.D.
Sample 022	N.D.	N.D.	N.D.	N.D.
Sample 023	N.D.	N.D.	N.D.	N.D.
Sample 024	N.D.	N.D.	N.D.	N.D.
Sample 025	N.D.	N.D.	N.D.	N.D.
Sample 026	N.D.	N.D.	N.D.	N.D.
Sample 027	N.D.	N.D.	N.D.	N.D.
Sample 028	N.D.	N.D.	N.D.	N.D.
Sample 029	N.D.	N.D.	N.D.	N.D.
Sample 030	N.D.	N.D.	N.D.	N.D.
Sample 032	N.D.	N.D.	N.D.	N.D.

Note:

All Concentrations express in "mg/kg"(milligram per kilogram), mg/kg ~ ppm.

"N.D." = "Not Detected".

## ANNEX A: Photo-documentation

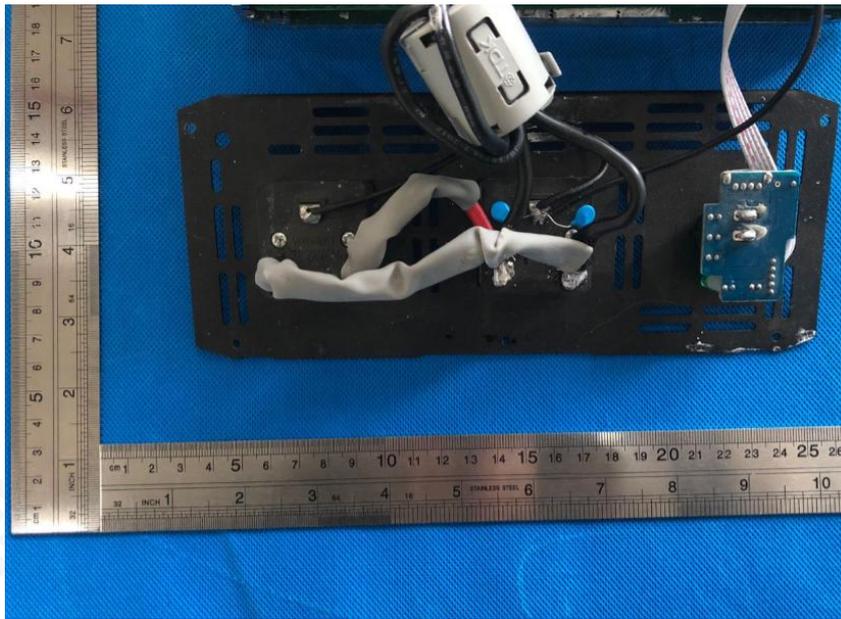
EUT Photo 1



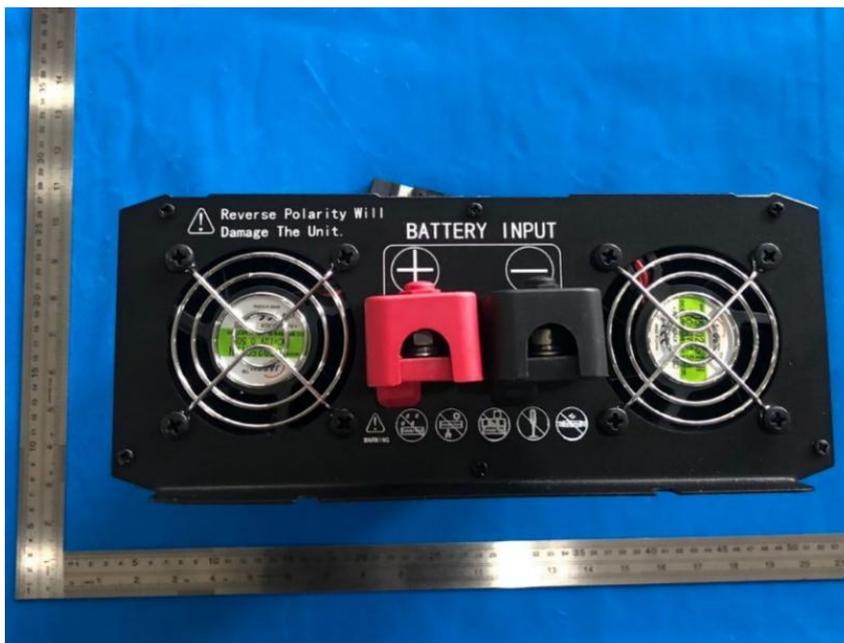
EUT Photo 2



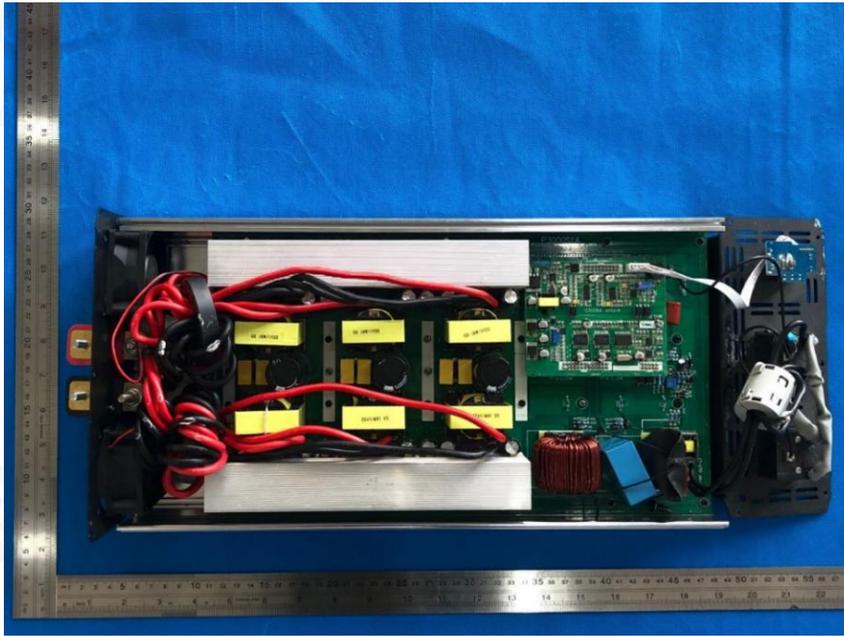
EUT Photo 3



EUT Photo 4



EUT Photo 5



\*\*\*\*\* END OF REPORT\*\*\*\*\*