



Evaluation Report of Environmental Directives Compliance

Product Name : SOLAR INVERTER

Product Models : SUN2000-50KTL-M0, SUN2000-60KTL-M0

Report Number : SYBH(G)03824184

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Applicant : Huawei Technologies Co., Ltd.
Address : Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Product Name : SOLAR INVERTER
Product Model : SUN2000-50KTL-M0, SUN2000-60KTL-M0
Date of Receipt Sample : 2018-02-17
Start Date of Evaluation : 2018-02-17
End Date of Evaluation : 2018-02-20

Evaluation Result :

Regulation	Conclusion
2011/65/EU (EU RoHS) & other RoHS directives in other countries	Complies
Regulation (EC) No. 1907/2006 (REACH) for Product	See Clause 5.4
94/62/EC&2004/12/EC for Packaging Material	Complies
2012/19/EU (WEEE) & other WEEE directives in other countries	Complies
Huawei Requirements of Restricted Substances	Complies
2006/66/EC&2013/56/EU on batteries and accumulators	Complies

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Modification Record

No.	Last Report No.	Modification Description
1	N/A	First report



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1 General Information

1.1 Applied Standard

Applied Product Directives & Standards : 2011/65/EU (EU RoHS) & EN50581
Regulation (EC) No. 1907/2006 (EU REACH)
2006/66/EC&2013/56/EU(Battery Directive)
Huawei's Requirements for Restricted Substances
China RoHS and India RoHS
2012/19/EU (WEEE)
Similar RoHS and WEEE Directives in other countries

Test Methods : See detailed evaluation contents

1.2 Evaluation Location

Evaluation Location : Reliability Laboratory of Huawei Technologies Co., Ltd.

Address : Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

1.3 Evaluation Environment Condition

Ambient Temperature : --

Relative Humidity : --

Atmospheric Pressure : --

2 Product Information

Product Name : SOLAR INVERTER

Product Models : SUN2000-50KTL-M0, SUN2000-60KTL-M0

Product Photo :



Remark: Two models have the same external view.

3 Review of Document of Conformity (DoC)

As per Huawei's requirements of material compliance, all suppliers should provide DoC (Document of Conformity), MCD (Material Composition Declaration) and the test reports of high-risk materials to prove that their products comply with the requirements of Huawei. All suppliers of materials / parts in products should declare their products meet Huawei's environmental requirement, including RoHS requirements, REACH requirements, packaging requirements, battery requirements and other Huawei's special requirements.

In the process of environmental compliance evaluation, all suppliers documents were evaluated according to Huawei's requirements, and all results were described in table below.

Table 1 Evaluation Results of DoC

Material Descriptions	Reason of Non-compliance	Conclusion
All Materials	NA	Pass

Remark: NA = Not Applicable

4 RoHS Evaluation of Product

4.1 Evaluation of Materials / Samples

According to the European Standard of EN50581: 2012 and Huawei *Product RoHS Certification Guide*, the high-risk materials should be tested during the RoHS certification process and all materials (the non-risk materials and high-risk materials) were evaluated according to Huawei’s requirements (See clause 3). As per the Directive 2011/65/EU and their amendments (RoHS Directive) and other RoHS directives in other countries, the evaluation results were summarized in table below based on the product’s Bill of Material (BOM) and tested results provided by the applicant.

(1) High Risk Materials / Samples Information

Table 2 Evaluation results of high risk materials / samples for RoHS

Item	Evaluation of High Risk Materials / Samples ^{#1}		
High Risk Material Information	Amount		
	High Risk Samples in Product ^{#2}	Tested Samples	Failed Samples
	51	51	0
Result ^{#3}	Pass		

Remark:

- #1 : Evaluation results were based on the configuration of the product (See Annex I). Other models had the similar evaluation results with SUN2000-50KTL-M0 for their similar compounds and materials.
- #2 : As per Huawei’s “*Product RoHS Certification Guide*”, “*Annex A in IEC62321*” and “*Annex D in GB/T26572*”, the high risk materials include solder (Pb), plating layer (Pb, Cr(VI)), plastic colorant (Pb, Cd and Cr(VI)), ABS (Acrylonitrile Butadiene Styrene) plastic (PBDE), PVC (Polyvinyl Chloride) plastic (Pb, Cd), PP (Polypropylene) plastic (PBDE), PET (Polyester Terephthalate) plastic (PBDE), PBT (Polybutylene Terephthalate) plastic (PBDE), coatings (Pb) and alloy (Pb, Cd and Cr(VI)).
- #3 : The results based on the evaluation results and the exemptions in EU RoHS Directives, and all exemptions applied to the evaluated product materials were taken as “Pass” for the evaluation results.

(2) Information of Failed Sample

From the part fulfil RoHS attribute in PDM System (pdm.huawei.com), MCD (Material Composition Declaration) in Huawei InSight System (insight.huawei.com) and the test report submitted by suppliers and applicant, the contents of restricted substances in EU RoHS are listed in table below.

Table 3 Contents of Restricted Substance in Failed Sample

Material Descriptions	Report No.	Content of Restricted Substances (ppm)					
		Cd	Pb	Hg	Cr(VI)	PBB	PBDE
-	-	-	-	-	-	-	-



Remark:

ppm = parts per million

4.2 Test Items and Methods of the High Risk Materials

As per the information provided by the applicant, the high risk materials were tested by the following methods.

Table 4 Test Methods of High Risk Materials for RoHS

Testing Item	Test Method
Cadmium (Cd)	With reference to IEC 62321, by acid digestion and determined by ICP-OES
Lead (Pb)	
Mercury (Hg)	
Hexavalent chromium [Cr(VI)]	With reference to IEC 62321, by solvent extraction and determined by UV-VIS
Polybrominated biphenyls (PBB)	With reference to IEC 62321, by solvent extraction and determined by GC/MS
Polybrominated biphenyl ethers (PBDE)	

4.3 RoHS Requirements

The limits of restricted substances were quoted from 2011/65/EU for homogeneous material.

Table 5 Limits of RoHS Restricted Substances

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 ppm)
Lead (Pb)	0.1% (1000 ppm)
Mercury (Hg)	0.1% (1000 ppm)
Hexavalent chromium [Cr(VI)]	0.1% (1000 ppm)
Polybrominated Biphenyls (PBB)	0.1% (1000 ppm)
Polybrominated Diphenyl Ethers (PBDE)	0.1% (1000 ppm)

5 REACH SVHC Evaluation

5.1 SVHCs in a concentration above 0.1% (w/w) of article

From the DoC (Document of Conformity), the MCD (Material Composition Declaration) in Huawei InSight System (insight.huawei.com) and the test report submitted by suppliers and applicant, the SVHCs (Substances of Very High Concern) in a concentration above 0.1% (w/w) of "article" are listed in table below.

Table 6 SVHCs in a concentration above 0.1% weight by weight

SVHCs in a concentration above 0.1% weight by weight	CAS No.
ANTIPYONIN	1303-96-4



DIBORON TRIOXIDE	1303-86-2
BORACIC ACID	10043-35-3
4,4'-METHYLENEDIANILINE	101-77-9
N,N-DIMETHYLACETAMIDE	127-19-5
1,3,5-TRIGLYCIDYL-S-TRIAZINETRIONE	2451-62-9
LEAD (II) CHROMATE	7758-97-6
BIS (2-ETHYLHEXYL) PHTHALATE (DEHP)	117-81-7

Remark:

1. The results were based on the configuration of the product (See Annex I) Other models had the similar evaluation results with SUN2000-50KTL-M0 for their similar compounds and materials.
2. "Article" in product means an object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition (According to Regulation EC No. 1907/2006). The limit of 0.1% (w/w) applies to every article in the product. The results were calculated to an article defined by decision C-106/14 of EuGH of 10th September 2015.

5.2 List of SVHC

According to Regulation EC No. 1907/2006 (REACH) and ECHA (European Chemical Agency) website, the SVHC (Substance of very high concern) was listed on the website (<https://echa.europa.eu/candidate-list-table>).

5.3 Requirements of SVHC

5.3.1 In accordance with Regulation (EC) No 1907/2006, any EU manufacturer or importer of articles shall notify ECHA, in accordance with paragraph 2 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 totaling over one tonne per manufacturer 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).The following information has to be submitted for notification:

- a. Identification of the registrant and the substance,
- b. Classification and labeling of the substance,
- c. Description of use of the substance and the article,
- d. Registration number, if available,
- e. Tonnage range.

5.3.2 As per article 33 of regulation (EC) No. 1907/2006 (REACH), recipients of product must be provided



with sufficient information, as a minimum, the name of that substance, to allow safe use if the concentration of any SVHC is above 0.1% (w/w). A product meets the requirement of article 33(1) by default when no SVHC exceeds 0.1% (w/w).

5.4 Conclusion

According to specified evaluation processes in this report, substances of very high concern (SVHC) in candidate list promulgated by European Chemicals Agency (ECHA), which are defined in article 57 of regulation (EC) No. 1907/2006 (REACH regulation), are listed in table 6.

6 Evaluation of Packaging Material

6.1 Requirements of packaging material for restricted substance

(a) According to EU Packaging Directive (94/62/EC), the sum of contents of restricted substances (Cd, Pb, Hg and Cr (VI)) in packaging material (such as packaging, instruction, guideline and other packaging materials in medium) should be less than 100ppm.

(b) According to REACH regulation (EC No. 1907/2006), the packaging considered as an independent article should comply with the SVHC requirements, and if the content for individual SVHC more than 0.1% (w/w) should be meet the requirement described in clause 5.3.

6.2 Evaluation Results of Packaging Material

From the DoC (Document of Conformity) and the MCD (Material Composition Declaration) in Huawei InSight System (insight.huawei.com) and the test report submitted by suppliers and applicant, the contents of restricted and notification substances for Packaging Directive and SVHC (List described in clause 5.2) in packaging material are listed in table below.

Table 7 Contents of Restricted / Notification Substance in Packaging Material

Material Descriptions	Report No.	Content of Restricted Substances (ppm)					SVHC contents (ppm)
		Cd	Pb	Hg	Cr(VI)	Sum	Each SVHC
All materials	-	ND	ND	ND	ND	<100	-
SVHC in Article		-	-	-	-	-	<1000
Conclusion		Pass					Don't Need to Notify

Remark:

ppm = parts per million

ND = Not detected (Less than the method limits for the test lab.)

7 Evaluation of Battery

7.1 Requirements of battery for restricted substance

(a) According to EU Battery Directive (2006/66/EC&2013/56/EU), EU shall prohibit the placing on the market of a) all batteries or accumulators, whether or not incorporated into appliances, that contain more than 0,0005 % of mercury by weight; and that contain more than 0,002 % of cadmium by weight. All batteries containing more than 0,004 % lead, shall be marked with the chemical symbol for the metal concerned: Pb.

(b) According to EU REACH Regulation (EC No. 1907/2006), the battery considered as an independent article should comply with the SVHC requirements, and if the content for individual SVHC more than 0.1% (w/w) should be meet the requirement described in clause 5.3.

7.2 Evaluation Results of Battery

From the DoC (Document of Conformity) and the MCD (Material Composition Declaration) in Huawei InSight System (insight.huawei.com) and the test report submitted by suppliers and applicant, the contents of restricted and notification substances for battery directive and SVHC (List is described in clause 5.2) in battery are listed in table below.

Table 8 Contents of Restricted / Notification Substance in Battery

Material Descriptions	Report No.	Content of Restricted Substances (ppm)			SVHC contents (ppm)
		Cd	Pb	Hg	Each SVHC
Battery	-	ND	ND	ND	<1000
Conclusion		Pass			Don't Need to Notify

Remark:

ppm = parts per million

ND = Not detected (Less than the method limits for the test lab.)

8 Evaluation of Other Restricted Substance

8.1 Huawei's requirements for restricted substance

As per Huawei's requirements based on the laws, regulations, decrees and directives for restricted substances in the words, the following substances were forbidden to add in Huawei's product:

Table 9 List of Huawei Restricted Substances

Compounds Name	CAS No.	Limits	Restrictions Scope
Lead (Pb)	...	300 ppm	Jacket of cable
		1000 ppm	All materials, products
Cadmium and its compounds	100 ppm	All materials, products
		20 ppm	Battery and accumulators
Mercury and its compounds	1000 ppm	All materials, products
		5 ppm	Battery and accumulators
Chromium(VI) compounds	1000 ppm	All materials, products
		Not Detected (<3ppm)	Leathers



Polybrominated Biphenyls(PBB)	.....	1000 ppm	All materials, products
Polybrominated Diphenylethers(PBDE)	.....	1000 ppm	All materials, products
Alkanes C10-C13, chloro (short-chain chlorinated paraffins) (SCCPs)	85535-84-8	1500 ppm	All materials, products
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α – HBCDD, β -HBCDD, γ -HBCDD)	25637-99-4 & 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8)	1000 ppm	All materials, products
Perfluorooctane sulfonate(PFOS)	1763-23-1	1000 ppm	All materials, products
		1 $\mu\text{g}/\text{m}^2$	Coatings of any products
Perfluorooctanoic Acid (PFOA)	335-67-1	1000 ppm	All materials, products
		1 $\mu\text{g}/\text{m}^2$	Coatings of any products
Hexachlorobutadiene	87-68-3	Intentionally added	All materials, products
Monomethyl – tetrachlorodiphenyl Methane	76253-60-6	Intentionally added	All materials, products
Monomethyl-dichloro-diphenyl Methane	81161-70-8	Intentionally added	All materials, products
Monomethyl-dibromo-diphenyl Methane Bromobenzylbromotoluene, Mixture of Isomers (DBBT)	99688-47-8	Intentionally added	All materials, products
Dimethylfumarate(DMF)	624-49-7	0.1 ppm	All materials, products
Tri-substituted organostannic compounds(TBT, TPT)	1461-25-2 / 892-20-6 / 668-34-8	Intentionally added	All materials, products
Dibutyltin compounds(DBT)	.....	1000 ppm	
Tributyltin oxide(TBTO)	56-35-9	Intentionally added	
Diocyltin compound (DOT)	.....	1000 ppm	
Hexachloroethane	67-72-1	Intentionally added	All materials, products and packaging
Polychlorobiphenyls and derivatives (PCBs)	1336-36-3 and so on	Intentionally added	All materials, products and packaging
Polychloroterphenyls and derivatives (PCTs)	61788-33-8 and so on	Intentionally added	
Polychlorinated naphthalenes (PCN, more than 3 chlorine atoms)	70776-03-3 and so on	Intentionally added	



Benzene	71-43-2	Intentionally added	All materials, products
2-(2H-benzotriazol-2-yl)-4,6-di-tert-butylphenol	3846-71-7	Intentionally added	Adhesives, paint, printing ink
Azocolourants and Azodyes	.....	30 ppm	Textiles intended to come into contact with the skin
Carcinogenic and Allergenous Dyes	.....	Intentionally added	Textile, leather articles
Asbestos fibres	...	Intentionally added	All materials, products and packaging
Chlorofluorocarbons and halons (Ozone Depleting Chemicals)	...	Intentionally added	All materials, products and packaging
Radioactive substances	...	ND	All materials, products and packaging
Nickel and its compounds	.....	0.5 µg/cm ² / week	The plating, corrosion resistant alloy material intended to come into direct and prolonged contact with the skin
Pentachlorophenol(PCP)	87-86-5	5 ppm	Textiles and leathers
Nonylphenol, Nonylphenol ethoxylate	25154-52-3/ 9016-45-9	Intentionally added	Textiles
Tris (2,3-dibromopropyl) phosphate(TRIS)	126-72-7	Intentionally added	Textiles intended to come into contact with the skin
Tris-aziridiny)phosphin oxide (TEPA)	5455-55-1	Intentionally added	Textiles intended to come into contact with the skin
Octylphenol and its ether (OPs)	-	1,000 ppm	All materials, products
Formaldehyde	50-00-0	75 ppm	Textiles and leathers
		0.1 ml/m ³	Woods, adhesives
Arsenic / arsenic compounds (As)	...	Intentionally added	Preservative of wood

8.2 Evaluation of Materials / Samples

8.2.1 Document Evaluation

The evaluation of restricted substances was based on the statistic of material / sample from the history data, and the supplier was evaluated by the material categories, tested data, and so on. All suppliers should provide DoC (Document of Conformity) to prove that their products complied with the requirements of Huawei (See clause 3).

8.2.2 Contents of Restricted Substances

As per the data from Huawei InSight System (insight.huawei.com), test report, MCD or DoC provided by supplier, and Huawei’s requirements of other restricted substances, the contents of restricted substances in material or sample are described in table below.

Table 10 Test Results of Huawei Restricted Substances

Material Descriptions	Prohibited Substance	Limit	Content in material / sample
All Materials	N/A	N/A	N/A

Remark: The evaluation results were based on the configuration of the product.

8.3 Conclusion

As per the results as above (Clause 8.2), the contents of restricted substances in submitted sample **comply with** the requirements of Huawei.

9 WEEE Evaluation

9.1 WEEE 3R (Recovery, Recycling & Re-use) Evaluation

9.1.1 Preparation of Product 3R Evaluation

According to Articles 8 and the Annex VII of Directive 2012/19/EU (WEEE), the product contains the following substances, preparations and components have to be removed and be selective treated in table below.

Table 11 Removed Components in Product

Descriptions of Parts and Materials	Remarks	Quantity
Capacitors / condensers (Containing PCB/PCT)	Polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT)	0
Mercury-containing components	Such as mercury in lamps, display backlights, scanner lamps, switches, batteries	0
Batteries	All types including standard alkaline and lithium coin or button style batteries	1
Printed Circuit Boards (PCB) or Printed Circuit Assemblies (PCBA)	Printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimeters,	6



Components and parts containing toner and ink, including liquids, semi-liquids (gel/paste) and toner	Include the cartridges, print heads, tubes, vent chambers, and service stations.	0
Plastics containing Brominated Flame Retardants	Brominated Flame Retardants include PBB, PBDE, HBCDD and so on	0
Components and waste containing asbestos	-	0
Cathode Ray Tubes (CRT)	-	0
Chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC)	-	0
Gas Discharge Lamps	-	0
Liquid Crystal Displays (LCD)	With a surface greater than 100 sq cm, includes background illuminated displays with gas discharge lamps	0
External electrical cables and cords	-	2
Components, parts and materials containing refractory ceramic fibres	Described in Commission Directive 97/69/EC adapting to technical progress Council Directive 67/548/EEC relating to the classification, packaging and labeling of dangerous substances (2)	0
Components, parts and materials containing radioactive substances	With the exception of components that are below the exemption thresholds set in Article 3 of an Annex I to Council Directive 96/29/Euratom laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation (3)	0
Electrolyte capacitors containing substances of concern	Height > 25 mm, diameter > 25 mm or proportionately similar volume	0

9.1.2 WEEE 3R Calculation of Product

As per the evaluation instructions of WEEE 3R and Huawei InSight Platform and according to IEC: TR merge 62635-62650, the results of 3R were listed in table below.

Table 12 Results of WEEE 3R for Evaluated Product

Material / Part Description	Weight Ratio (%)	Recyclability / Reuse Rate	Recoverability Rate	Weight Ratio of Recovery (%)	Weight Ratio of Recycle / Reuse (%)
(1) Parts required selective treatment					
Power Cable	4.10%	85%	90%	3.69%	3.49%
Capacitor (PCB)	0.00%	65%	90%	0.00%	0.00%



PCB (Printed Circuit Board)	16.29%	60%	90%	14.66%	9.78%
BFR* Plastics	0.00%	0%	90%	0.00%	0.00%
Electrolyte Capacitors	0.00%	0%	0%	0.00%	0.00%
(2) Parts difficult to process					
Compressors	0.00%	90%	90%	0.00%	0.00%
AC Motor	0.00%	90%	90%	0.00%	0.00%
Resin Motor	0.00%	0%	0%	0.00%	0.00%
Transformer (MWO)	0.00%	90%	90%	0.00%	0.00%
(3) Parts which go to separation process					
ABS (Acrylonitrile Butadiene Styrene)	0.00%	70%	90%	0.00%	0.00%
PC (Polycarbonate)	2.12%	70%	90%	1.91%	1.49%
PET (Polyethylene Terephthalate)	0.00%	70%	90%	0.00%	0.00%
PP (Polypropylene)	0.00%	70%	90%	0.00%	0.00%
PS (Polystyrene Resin)	0.00%	70%	90%	0.00%	0.00%
PBT (Polyethylene Terephthalate)	0.00%	70%	90%	0.00%	0.00%
PVC (Poly Vinyl chloride)	0.00%	0%	90%	0.00%	0.00%
POM(Polyoxymethylene)	0.00%	70.00%	90%	0.00%	0.00%
EP (Epoxy Resin)	0.00%	0%	90%	0.00%	0.00%
Steel	2.83%	93%	93%	2.63%	2.63%
Aluminum	47.24%	90%	90%	42.52%	42.52%
Copper	21.84%	93%	93%	20.31%	20.31%
Rubber	0.00%	0%	90%	0.00%	0.00%
Fiberglass	0.00%	80%	80%	0.00%	0.00%
Others	5.57%	60%	60%	3.34%	3.34%
Total	100.0%	-	-	89.1%	83.6%

Remarks:

3R = Recovery, Recycling and Re-use

WEEE = Waste Electrical and Electronic Equipment

The evaluation results were based on the configuration of the product (See Annex I)

Other models had the similar evaluation results with SUN2000-50KTL-M0 for their similar compounds and materials.

9.1.3 WEEE 3R Conclusion

According to the evaluation process of WEEE 3R described above clause 9.1.2, the below conclusion

can be gotten in table below.

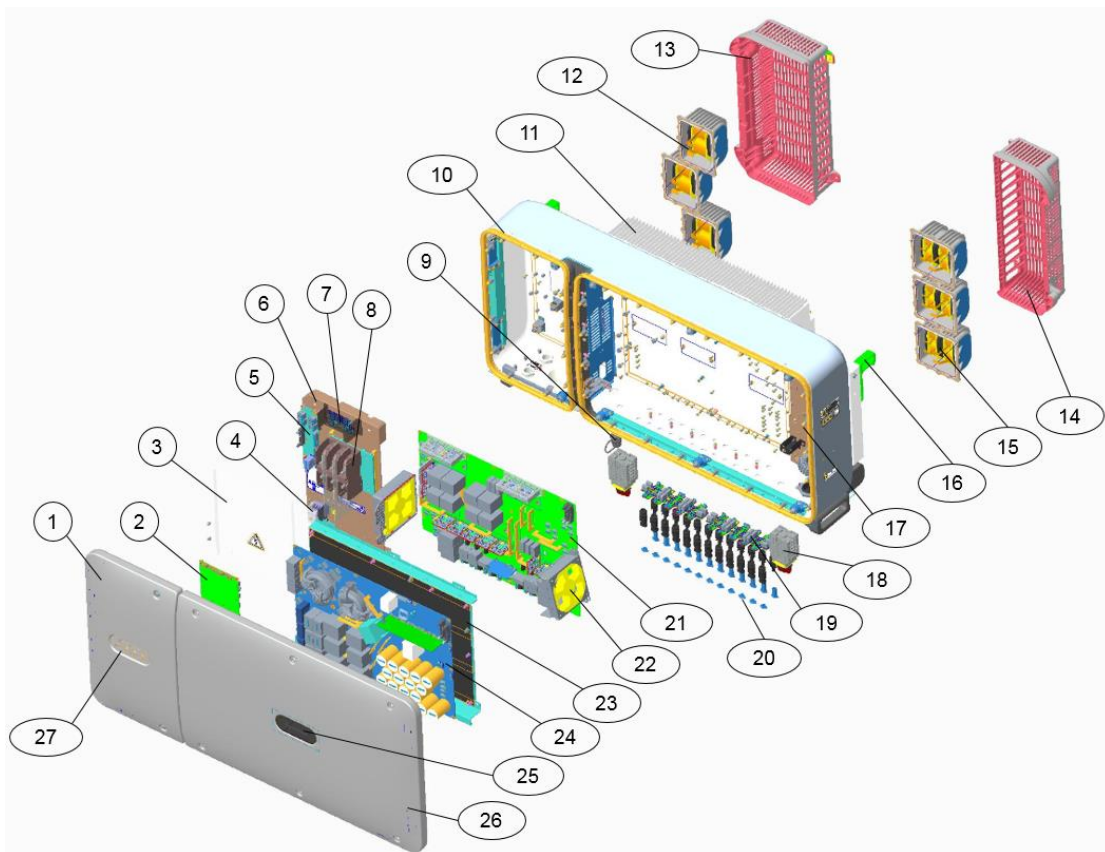
Table 13 Conclusion of WEEE 3R for Evaluated Product

Product Name	SOLAR INVERTER	
Product Category	IT & Telecommunications Appliances	
Reuse/recycling/recovery (3R)	Recovery (%)	Re-use & Recycling (%)
Evaluation Result(SUN2000-50KTL-M0, SUN2000-60KTL-M0)	>80%	>70%
3R Requirements in WEEE for the Product	80%	70%
3R Compliance for the Product	PASS	PASS

9.1.4 Sketch Figure of Sample Disassembly

The disassembly procedure taken here is in accordance with the treatment requirements under WEEE Directive, and based on economic and efficiency factor, disassembly tools, and current state of the art of recycling and recovery technology. The detailed information for sample disassembly can be described as below in Figure 1.

Figure 1 Sketch Figure of Evaluated Sample Disassembly



Remarks: (All information is from the installation instruction) Two models have the same sketch figure

No.	Component	No.	Component
(1)	Maintenance chamber door	(15)	Boost inductor
(2)	Monitoring board	(16)	Mounting bracket

(3)	PC protective cover	(17)	Power chamber separator
(4)	Tracking system power supply port (excluded for SUN2000 50KTL-M0 and 60KTL-M0)	(18)	DC switch
(5)	User interface board	(19)	PV EMI board
(6)	Maintenance chamber separator	(20)	DC terminal dustproof cap
(7)	Output EMI board	(21)	Power board
(8)	AC output terminal	(22)	Fan component
(9)	USB port	(23)	Intermediate separator
(10)	Chassis component	(24)	Output board
(11)	Heat sink	(25)	Logo panel
(12)	Inverter inductor	(26)	Power chamber cover
(13)	Invert inductor protective cover	(27)	Lamp panel
(14)	Boost inductor protective cover		

9.1.5 WEEE 3R Requirements

As per WEEE Directive (2012/19/EU), all products sold in EU should comply with the requirements of recovery, recycling and re-use (3R) for their design. Detailed requirements for 3R are described in table below.

Table 14 Requirements of WEEE 3R for Products

Categories No.	WEEE Category	Rate of Recovery	Rate of Recycling & Re-use
1	Large Household Appliances	85%	80%
2	Small Household Appliances	75%	55%
3	IT & Telecommunications Appliances	80%	70%
4	Consumer Equipments	80%	70%
5	Lighting Equipments	75%	55%
	Gas Discharge Lamps	-	80%
6	Electrical and Electronic Tools	75%	55%
7	Toys, Leisure & Sports Equipments	75%	55%
8	Medical Devices	-	-
9	Monitoring and Control Instruments	75%	55%
10	Automatic Dispensers	85%	80%

9.1.6 WEEE 3R Definition

According to directive 2012/19/EU (WEEE), Re-use, Recycling & Recovery Rate using in the report are calculated as following formulas.

$$\text{RecoveryRate}(\%) = \frac{\text{Re - use \& RecyclingWeight} + \text{Energy Recovery Weight}}{\text{Product Total Weight}} \times 100\%$$

$$\text{RecyclingRate}(\%) = \frac{\text{RecyclingWeight}}{\text{Product Total Weight}} \times 100\%$$

$$\text{Re - useRate}(\%) = \frac{\text{Re - use Weight}}{\text{Product Total Weight}} \times 100\%$$

Remark: Total weigh of the product includes the main product and accessories weight.

9.2 WEEE Design Evaluation

9.2.1 WEEE Design Requirements

According to 2012/19/EU, the producer is encouraged to design and produce EEE product with taking into full account and facilitate dismantling and recovery, in particular the re-use and recycling of WEEE, their components and materials. The below is the detailed requirements for the product design for WEEE.

(1) Producers should not prevent, through specific design features or manufacturing processes, WEEE from being reused, unless such specific design features or manufacturing processes present overriding advantages, for example, with regard to the protection of the environment and/or safety requirements.

(2) Where appropriate, priority should be given to the reuse of WEEE and its components, subassemblies and consumables.

(3) Where re-use is not preferable, all WEEE collected separately should be sent for recovery, in the course of which a high level of recycling and recovery should be achieved.

(4) Producers should be encouraged to integrate recycled material in new equipment.

9.2.2 Conclusion of WEEE Design Evaluation

In the process of product design and manufacturing, the procedure was based on the company document "Energy Saving Design Guidelines, V7.0, Green Design for Structure" from the Ministry of Energy Saving to meet the WEEE requirements. As per the product instruction evaluated, the following conclusion can be gotten in table below.

Table 15 Results of Product Design

Product Design Requirements		Actual Status for Evaluated Product	Results
(a)	Specific design features for reuse and repair	The evaluated product was designed for modularization and easy disassembly.	Yes
(b)	Reuse of WEEE and its components, subassemblies and consumables	The reused parts were used in the evaluated product.	Yes
(c)	Recoverable materials were used	The Green materials and recoverable materials were used in the evaluated product.	Yes
(d)	Integrated recycled materials	The integrated recycled materials were used in	Yes

	were encouraged to use	the evaluated product.	
Conclusion	Complies		

9.3 WEEE Label Evaluation

9.3.1 WEEE Label Requirements

As per the requirements of WEEE directive (2012/19/EU), producer is committed to marking all obligated EEE put on EU market with the crossed-out wheeled bin symbol, and the WEEE symbol should meet the requirements of EU standard EN50419: 2005. According to Standard EN50419: 2005, the WEEE symbol should meet the below requirements.

- (1) The symbol should be printed on the product. In special circumstances, the label can be marked on the package and instruction if it cannot be marked on the product surface for its size.
- (2) The symbol must be printed visibly, legibly and indelibly.
- (3) The dimensional relationship should meet that (Figure 2):
 - (a) The symbol should consist of a solid bar, the height of which equals “h” and the width of which equals 1.2a (a is the height of the body of crossed-out wheeled bin).
 - (b) The height (h) of the bar shall be the greater of 0.3a or 1 mm.
 - (c) The bar should only be used in conjunction with the crossed-out wheeled bin.
 - (d) The bar should not contain any text or any kind of additional information.

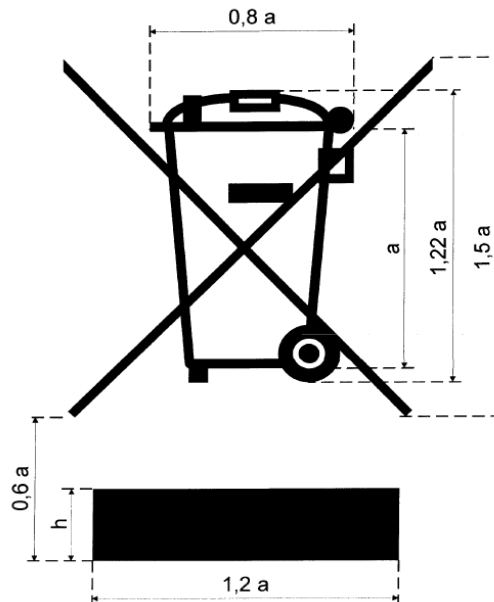


Figure 2 WEEE Symbol Requirements

9.3.2 Conclusion of WEEE Label Evaluation

As per the WEEE label on the product, the label was affixed on the product and the label passed the label test before its sales. From the WEEE label on product, the below evaluation results can be gotten in table below.

Table 16 Results of WEEE Label Evaluation

No.	Label Requirements	Actual Status for Evaluated Product	Results
(a)	Symbol Position	Product, package and instruction	Yes
(b)	Size	The “a” was more than 3.333mm and the “h” was more than 1mm on label of product.	Yes
(c)	Visibly	The label passed the label test for visibly, legibly and indelibly.	Yes
(d)	Legibly		Yes
(e)	Indelibly		Yes
Conclusion		Pass	

9.4 Product Recycling Evaluation

9.4.1 Requirements of Product Recycling

According to WEEE directive (2012/19/EU), producers should finance collection from collection facilities, and the treatment, recovery and disposal of WEEE. The producer should be able to choose to fulfill this obligation either individually or by joining a collective scheme. As per the requirements of WEEE directive (2012/19/EU), the producer should:

- (1) Join in or set up a collective system or individual system for WEEE.
- (2) Register as producer in every EU member.
- (3) Pay for the wastes of electrical and electronic equipment.
- (4) Report the quantities and categories of EEE put on every EU country periodically.
- (5) Collect the WEEE from customer when individual system.
- (6) Take charge of the transportation of WEEE when individual system.
- (7) Take charge of the dismantling and sorting of WEEE when individual system.
- (8) Handle with the special materials (such as containing hazardous substances) in products.
- (9) Manage the documents of WEEE evidence for at least 10years.
- (10) Provide necessary WEEE evidences when necessary.

9.4.2 Conclusion of Product Recycling

As per the recycling process for Huawei products in EU, the below evaluation results can be gotten in table below.

Table 17 Results of WEEE Recycling Evaluation

No.	Product Recycling Requirements	Actual Status for Evaluated Product#1	Results
1	Join in or set up a collective system or individual system	Huawei joined in collective system for B to C products#2 and appointed many recycling suppliers as individual system suppliers for B to B products#3	Complies
2	Register as producer in every EU member	Huawei had registered as producer in every EU member.	Complies

3	Pay for the WEEE	Huawei pays to the collective system or individual system in EU member for WEEE.	Complies
4	Report the quantities and categories	Huawei report to the local government for the product's quantities and categories termly.	Complies
5	Collect the WEEE from customer when individual system	Huawei is responsible for the B2B WEEE collection, and transport them to Huawei's warehouse . B2C WEEE is collected by collective system.	Complies
6	Take charge of the transportation of WEEE when individual system		Complies
7	Take charge of the dismantling and sorting of WEEE when individual system	For B2C WEEE, they are dismantled and sorted by collective system. For B2B WEEE, they are dismantled and sorted by appointed recycling supplier in individual system.	Complies
8	Handle with the special materials in products	For special material, they are separated to recycle by local recycling supplier .	Complies
9	Manage the documents of WEEE evidence for at least 10years	All documents for product WEEE were stored and copied for at least 10years in Huawei.	Complies
10	Provide necessary WEEE evidences when necessary		Complies
Conclusion		Complies	

Remarks

- #1 : For detailed information and evidence documents, please contact with Huawei "Return Management Department".
- #2 : B to C product means Business to Customer products
- #3 : B to B product means Business to Business products

10 Compliance Results in Other Countries

10.1 Restricted Substances Information in Product

According to China RoHS (Management measures for the restriction of hazardous substances in electrical and electronic products) and India RoHS, the contents of restricted substances should be shown in the product documentation. As per the evaluation process and the data in Huawei InSight System (insight.huawei.com), the below table was made for the product and its fittings.

Table 18 Restricted Substances Table in Product

Part Descriptions	Restricted Substances in Product					
	Cd	Pb	Hg	Cr(VI)	PBB	PBDE
Cabinet	○	×	○	○	○	○
PCBA	○	×	○	○	○	○
Cable	○	×	○	○	○	○

Corollary Equipment	○	×	○	○	○	○
Accessories	○	×	○	○	○	○
Battery	○	○	○	○	○	○

Remark:

- : It means that the content of the restricted substance in all materials of part is less than the limit defined in GB/T 26572, SJ/T 11363 and other similar directives in other countries.
- × : It means that the content of the restricted substance in at least one homogenous material of part is not less than the limit defined in GB/T 26572, SJ/T 11363 and other similar directives in other countries.

The contents of restricted substances are more than the limits defined in standard, but they are exempted from the standard and can be used in product.

10.2 Restricted Substances Compliance Results in Other Countries

As per the above evaluation results and the laws / regulations / directives for prohibited substances in the world, the compliance results for restricted substances in different countries as below in table below can be gotten.

Table 19 Evaluation of Huawei’s Product in different countries

Region	Requirements of material / sample / product	Conclusion
EU and EEA Countries	EU RoHS (2011/65/EU), REACH ((EC) No. 1907/2006) SVHC, REACH Appendix XVII, Battery Directive (2006/66/EC&2013/56/EU), Packaging Directive (94/62/EC), Montreal Protocol, Stockholm Convention	Pass
Turkey	Turkey RoHS (Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) No. 26891, Montreal Protocol, Stockholm Convention	Pass
Ukraine	Ukraine RoHS (Technical Regulation for Restricting the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) No. 139 , Montreal Protocol, Stockholm Convention	Pass
Germany	EU RoHS, GS PAHs Requirement, REACH SVHC, REACH Appendix XVII, Battery Directive, Packaging Directive, Montreal Protocol, Stockholm Convention	Pass
America	TPCH, CA 65 (California Proposition), CA RoHS (SB20/50), Montreal Protocol, Stockholm Convention	Pass
Canada	SOR 2014-254, SOR 2012-286, Montreal Protocol, Stockholm Convention	Pass
China	China RoHS (SJ/T 11363), Montreal Protocol, Stockholm Convention	NS*
Japan	Japan RoHS (Japan Waste Electrical and Electronic Equipment Management), Montreal Protocol, Stockholm Convention	NS*
Korea	K-RoHS & WEEE & ELV (Act for Resource Recycling of Electrical and	Pass

	Electronic Equipment and Vehicles), Montreal Protocol, Stockholm Convention	
India	India RoHS (the e-waste ((Management and Handling) Rules 2010)	NS*
Thailand	Thailand RoHS (TIS 2368-2551), Montreal Protocol, Stockholm Convention	Pass
Vietnam	Vietnam RoHS (30/2011/TT-BCT), Montreal Protocol, Stockholm Convention	NS*

Remark:

- EU = Europe Union, including Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.
- EEA = European Economic Area, including Iceland, Liechtenstein, Norway and all EU countries.
- NS* = Need to show the contents of restricted substances on the packaging, instruction or other documents.

10.3 WEEE Compliance Results in Different Countries

As per the above evaluation results and the laws / regulations / directives for WEEE in the world, the compliance results in different countries in table below can be gotten.

Table 20 Evaluation of Huawei’s Product in Different Countries

Country / Region	Requirements of material / sample / product	Conclusion
EU and EEA Countries	EU WEEE (2012/19/EU)	Pass
America	Electronic Waste Recycling Act (California), Electronic Scrap Recycling Act (Illinois), SB 1225 (Connecticut), 38 MRSA 1610 (Maine), Chapter 70.95N RCW (Washington), HB 2626 (Oregon), AB 2648 (New York), SB 1583 (Illinois), etc.	Pass
Canada	SWEEP (Saskatchewan), Regulation for WEEE recovery (Nova Scotia), Take-back program (Ontario), Clean Environment Act (New Brunswick), Electronics Recycling Alberta (Alberta), etc	Pass
Mexico	NOM-144-SEMARNAT-2004	Pass
China	China WEEE	Pass
Japan	Japan WEEE (Japan Waste Electrical and Electronic Equipment Management)	Pass
Korea	Korea WEEE (Act for Resource Recycling of Electrical and Electronic Equipment and Vehicles)	Pass
India	India WEEE (the e-waste ((Management and Handling) Rules 2010)	Pass
Colombia	Bill 273/09	Pass
Brazil	Draft CONAMA Resolution on a National Solid Waste Policy	Pass
Argentina	The National Solid Waste Management Act, 2005	Pass
Venezuela	Law on Hazardous Substances, Materials & Wastes, Law on Solid Wastes, Requisites for the Registration & Authorization of Handlers	Pass

	of Hazardous Substances, Materials & Wastes	
Ecuador	Ordinance - Integrated Management of Solid Wastes	Pass
Peru	Law 27314 – General Law on Solid Wastes, Implementing Regulation for Law 27314	Pass
Bolivia	Regulation on the Management of Solid Wastes	Pass
Chile	Health Ministry Resolution 2444-80 - Minimum Sanitary Norms for the Operation of Trash Dumps + Draft Regulation on Sanitary Landfills	Pass
Paraguay	Law on Common Primary Carbon-zinc & Alkaline Batteries & Piles, Noxious to Human Health & the Environment	Pass
Uruguay	Regulation on Used Lead-Acid Batteries, Law on the Use of Non-Returnable Packaging, Decree Implementing the Law on Non-Returnable Packaging	Pass
Costarica	Decree on the Labelling of Packaging for Food Products Regarding its Proper Post-Consumer Disposal + Regulation on Sanitary Landfills + Decree Prohibiting the Importation of Used Tires	Pass
Dominica	Environmental Norm on the Environment Management of Non-Hazardous Waste	Pass
Guatemala	Regulation on the Integral Management of Municipal Solid Wastes	Pass
Honduras	Regulation on the Management of Solid Wastes	Pass
Nicaragua	Technical Norm for the Environmental Control of Sanitary Landfills for Non-Hazardous Solid Wastes, Decree - National Policy on the Integrated Management of Solid Wastes	Pass
Panama	Decree Establishing Sanitary Norms for the Approval of Projects for the Construction & Operation of Security Landfills	Pass
Porto Rico	Regulation for the Management of Non-Hazardous Solid Wastes + Law for the Reduction & Recycling of Solid Waste in Puerto Rico	Pass
Thailand	Thailand WEEE (TIS 2368-2551), Montreal Protocol, Stockholm Convention	Pass
Vietnam	Vietnam RoHS (30/2011/TT-BCT), Montreal Protocol, Stockholm Convention	Pass
South Africa	Waste Act 59 of 2008	Pass
Egypt	National Environmental Action Plan	Pass
Algeria	Solid Waste Law No. 01-19	Pass
Cameroon	No. 96/12 of 5/08 1996, Decree No. 95/230/PM of 31/04/95	Pass

Remark:

- EU = Europe Union, including Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.
- EEA = European Economic Area, including United Kingdom, Iceland, Liechtenstein, Norway and all EU countries.



Annex I Configuration of Product

Board list		
Board Name	Description	Qty.
ENE3PWRF/ ENE3PWRE	Power board ENE3PWR used for (50KTL-M0 & 60KTL-M0 Model 01073871、01073872); Power board ENE3PWRE used for (60KTL-M0 Model 01074164)	1
ENE3CTLB	Sample Control Board	1
ENE3FLTG	Output board	1
ENE4SPBA	Interface board	1
ENE3COMD	Monitor communication board	1
ENE3FLTH	Output EMI board	1
Subassembly list		
Subassembly Name	Description	
-	-	

Remark: Two models have the same configuration.

END