



TEST REPORT N°: BVKJ-ESH-P23121382B-4



Test Report

Applicant:	Jiangsu Hanchu Energy Technology Co.,Ltd
Address:	No.588,Jinhui Road,Huishan District ,Wuxi City,Jiangsu Province,China
Manufacturer:	Jiangsu Hanchu Energy Technology Co.,Ltd
Address:	No.588,Jinhui Road,Huishan District ,Wuxi City,Jiangsu Province,China
This document includes : 9 pages	

Product Name:	Grid-connected hybrid Inverter	
Model Number:	Refer to model list	
Brand:		
Rated Voltage/Power	Refer to model list	
Received Date:	Dec.21, 2023	
Test Date:	--	
Applicable Standards:	EN 50665:2017 EN IEC 62311:2020, IEC 62311:2019	
Clause Examined :	All Clauses Relevant	

Test Location: Building C, No. 829, Xin Zhuan Road, Shanghai, CHINA

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Test done by:	Approved by:
 Name: Yuan ZHANG Title: Project Engineer Date: Dec.27, 2023	 Name: Sean YU Title: RF Supervisor Date: Dec.27, 2023

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Release Control Record

Issue No.	Description	Date Issued
BVKJ-ESH-P23121382B-4	Original release	Dec.27, 2023

Special comments: This co-report is based on history report BVKJ-ESH-P23020225B-4. Only change applicant's information, manufacturer's information and model name.


Original model	Model in this report
ASW05kH-T2	HESS-HY-T-05K
ASW06kH-T2	HESS-HY-T-06K
ASW08kH-T2	HESS-HY-T-08K
ASW10kH-T2	HESS-HY-T-10K
ASW12kH-T2	HESS-HY-T-12K
ASW05kH-T3	HESS-HY-T1-05K
ASW06kH-T3	HESS-HY-T1-06K
ASW08kH-T3	HESS-HY-T1-08K
ASW10kH-T3	HESS-HY-T1-10K
ASW12kH-T3	HESS-HY-T1-12K



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1 General Information

1.1 General Description of EUT

Product	Grid-connected hybrid Inverter
Brand	
Model	Refer to model list
Nominal Voltage	Refer to model list
Temperature Operating Range	-25°C~60°C
Modulation Type	DSSS, OFDM
Modulation Technology	802.11b/g/n20/n40
Operating Frequency	802.11b, 802.11g and 802.11n (HT20):2412MHz~2472MHz, 802.11n (HT40):2422MHz~2462MHz
Number of Channel	802.11b, 802.11g and 802.11n (HT20):13, 802.11n (HT40):9
Adaptive/Non-Adaptive	<input type="checkbox"/> non-adaptive Equipment <input checked="" type="checkbox"/> adaptive Equipment without the possibility to switch to a non-adaptive mode <input type="checkbox"/> adaptive Equipment which can also operate in a non-adaptive mode
EIRP Power (Measured Max. Average)	19.22dBm
Antenna Type	External Antenna
Antenna Gain	3.4dBi
Data Cable Supplied	--

Note:

1. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.
2. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.



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1.2 Model List

Model		HESS-HY-T -05K	HESS-HY-T -06K	HESS-HY-T -08K	HESS-HY-T -10K	HESS-HY-T -12K
PV input	VMaxpv [Vdc]	1100				
	Iscpv [A]	30				
	MPP Voltage Range [Vdc]	150 - 950		200-950		
	Full Power MPP Voltage Range [Vdc]	250-850	290-850	350-850	380-850	450-850
	Max. Input Current [A]	20				
	Start PV Voltage [Vdc]	180				
	Back feed Current [A]	0				
	Overvoltage Category (OVC)	II				
Battery input	Battery voltage range[Vdc]	120 - 600				
	Max. charging / discharging power[kW]	5	6	8	10	12
	Battery voltage range@nominal power[Vdc]	200-600	210-600	270-600	340-600	400-600
	Max. charging current / Max. discharging current [A]	30				
	Battery type	LiFePO4				
AC output	Rated Output Voltage [Vac]	220 / 380 V,230 / 400 V,240 / 415 ,3L/N/PE				
	Rated Output Frequency [Hz]	50 / 60				
	Rated Output Power [kW]	5	6	8	10	12
	Max.Apparent Power [kVA]	5.5	6.6	8.8	11.0	13.2
	Rated Output Current [A](@400V)	7.3	8.7	11.6	14.5	17.4
	Max.Output Current [A](@400V)	8.0	9.6	12.8	16.0	19.2
	Power Factor (cosφ)	1.0 (default), 0.80 lead, 0.80 lag				
	Overvoltage Category (OVC)	III				
AC input	Rated Input Voltage [Vac]	220 / 380 V,230 / 400 V,240 / 415 ,3L/N/PE				
	Rated Input Frequency [Hz]	50 / 60				
	Max. input power from grid [kW]	10	12	16	20	24
	Max. input current from grid[A]	14.5	17.4	23.2	29.0	34.8
EPS output	Nominal Output Voltage [Vac]	220 / 380 V,230 / 400 V,240 / 415 ,3L/N/PE				
	Nominal Output Frequency [Hz]	50 / 60				
	Max. apparent power[kVA]	5	6	8	10	12
	Rated Current[A] (@400V)	7.3	8.7	11.6	14.5	17.4
SYSTEM	Protective Class	I				
	Enclosure Protection [IP]	IP66				
	Operating Temperature Range [°C]	-25 °C ... +60 °C				
	Pollution degree (PD)	PD 3				
	Max. operating altitude [m]	3000				
	Acoustic Noise [dB]	< 60				
	Weight [Kg]	24.5				
	Size (W / H / D) [mm]	545 / 465 / 205				
	Firmware Version	Master DSP: 610-05001-00 Slave DSP: 610-60015-00 Safety: 610-11022-00				

1) For European market and Australian market, the max. apparent AC output power is equal to the rated power.

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Model		HESS-HY-T1 -05K	HESS-HY-T1 -06K	HESS-HY-T1 -08K	HESS-HY-T1 -10K	HESS-HY-T1 -12K
PV input	VMaxpv [Vdc]	1100				
	Iscpv [A]	24				
	MPP Voltage Range [Vdc]	150 - 950		200-950		
	Full Power MPP Voltage Range [Vdc]	180~850V	200~850V	250~850V	320~850V	380~850V
	Max. Input Current [A]	16				
	Start PV Voltage [Vdc]	180				
	Back feed Current [A]	0				
	Overvoltage Category (OVC)	II				
Battery input	Battery voltage range[Vdc]	120 - 600				
	Max. charging / discharging power[kW]	5	6	8	10	12
	Battery voltage range@nominal power[Vdc]	200-600	210-600	270-600	340-600	400-600
	Max. charging current / Max. discharging current [A]	30				
	Battery type	LiFePO4				
AC output	Rated Output Voltage [Vac]	220 / 380 V,230 / 400 V,240 / 415 ,3L/N/PE				
	Rated Output Frequency [Hz]	50 / 60				
	Rated Output Power [kW]	5	6	8	10	12
	Max.Apparent Power [kVA]	5.5	6.6	8.8	11.0	13.2
	Rated Output Current [A](@400V)	7.3	8.7	11.6	14.5	17.4
	Max.Output Current [A](@400V)	8.0	9.6	12.8	16.0	19.2
	Power Factor (cosφ)	1.0 (default), 0.80 lead, 0.80 lag				
	Overvoltage Category (OVC)	III				
AC input	Rated Input Voltage [Vac]	220 / 380 V,230 / 400 V,240 / 415 ,3L/N/PE				
	Rated Input Frequency [Hz]	50 / 60				
	Max. input power from grid [kW]	10	12	16	20	24
	Max. input current from grid[A]	14.5	17.4	23.2	29.0	34.8
EPS output	Nominal Output Voltage [Vac]	220 / 380 V,230 / 400 V,240 / 415 ,3L/N/PE				
	Nominal Output Frequency [Hz]	50 / 60				
	Max. apparent power[kVA]	5	6	8	10	12
	Rated Current[A] (@400V)	11.6	14.5	11.6	14.5	17.4
SYSTEM	Protective Class	I				
	Enclosure Protection [IP]	IP66				
	Operating Temperature Range [°C]	-25 °C ... +60 °C				
	Pollution degree (PD)	PD 3				
	Max. operating altitude [m]	3000				
	Acoustic Noise [dB]	< 60				
	Weight [Kg]	26				
	Size (W / H / D) [mm]	545 / 465 / 205				
	Firmware Version	Master DSP: 610-05001-00 Slave DSP: 610-60015-00 Safety: 610-11022-00				

1) For European market and Australian market, the max. apparent AC output power is equal to the rated power.

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2 RF Exposure Measurement

2.1 Introduction

This International Standard applies to electronic and electrical equipment for which no dedicated product- or product family standard regarding human exposure to electromagnetic fields applies.

The frequency range covered is 0 Hz to 300 GHz.

The object of this generic standard is to provide assessment methods and criteria to evaluate such equipment against basic restrictions or reference levels on exposure of the general public related to electric, magnetic and electromagnetic fields and induced and contact current.

2.2 Limit

According to EN 62311:2008, the criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified 1999/519/EC.

Frequency Range	E-Field Strength 1(V/m)	H-Field Strength (A/m)	B-Field (μ T)	Equivalent Plane Wave Power Density S_{eq} (W/m ²)
0-1 Hz	—	$3,2 \times 10^4$	4×10^4	—
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	—
8-25 Hz	10 000	$4\ 000/f$	$5\ 000/f$	—
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	—
0,8-3 kHz	$250/f$	5	6.25	—
3-150 kHz	87	5	6.25	—
0,15-1 MHz	87	$0.73/f$	$0.92/f$	—
1-10 MHz	$87/f^{1/2}$	$0.73/f$	$0.92/f$	—
10-400 MHz	28	0.073	0.092	2
400-2 000 MHz	$1.375 f^{1/2}$	$0.0037 f^{1/2}$	$0.0046 f^{1/2}$	$f/200$
2 ~ 300 GHz	61	0.16	0.20	10



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2.3 Normative Reference Classification of The Assessment Methods

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user. Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. So, this product under normal use is located on electromagnetic far field between the human body.

Far Field Calculation Formula

$$E = \eta_0 H = \frac{\sqrt{30PG(\theta, \phi)}}{r}$$

G = antenna gain relative to an isotropic antenna
 θ, ϕ = elevation and azimuth angles to point of investigation
r = distance from observation point to the antenna
 η_0 = Characteristic impedance of free space



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2.4 Test Results

Calculation for maximum EIRP

Frequency Band	Output Power E.I.R.P. (dBm)	Output Power E.I.R.P. (mW)	E-Field Strength (V/m)	E-Field Strength Limit (V/m)	Pass / Fail
WIFI 2.4G	19.22	83.56	7.92	61	Pass

Calculation for RF Exposure Evaluation

Frequency Band	Maximum EIRP (dBm)	Limit of Power Density S(W/m ²)	Power Density S(W/m ²)	Result
WIFI 2.4G	19.22	10	0.1663	Pass

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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