TEST REPORT

Product Name : Off-grid inverter

Model Number : XN12048-MAX

Prepared for : INVT Solar Technology (ShenZhen) Co., Ltd.
Address : 6th Floor, Block A, INVT Guangming Technology Building, Kejie Fourth Road, Shutianpu Community, Matian Guangming District, 518000 Shenzhen, PEOPLE'S REPUBLIC OF CHINA

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Report Number : ENS2511110249P00201R

TEST REPORT
IEC 61683
Photovoltaic systems – Power conditioners – Procedure for measuring efficiency

Report Reference No.....	ENS2511110249P00201R
Compiled by (name + signature)	An Yang
Approved by (name + signature)	Paladin Hu
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Testing Laboratory name	EMTEK (SHENZHEN) CO., LTD.
Address.....	Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China
Testing location/ address.....	Same as above
Applicant's name	INVT Solar Technology (ShenZhen) Co., Ltd.
Address.....	6th Floor, Block A, INVT Guangming Technology Building, Kejie Fourth Road, Shutianpu Community, Matian Guangming District, 518000 Shenzhen, PEOPLE'S REPUBLIC OF CHINA
Test specification:	
Standard.....	IEC 61683:1999
Test procedure	IEC report
Non-standard test method.....:	N/A
Test Report Form No.	IEC61683B
Test Report Form(s) Originator.....	TÜV SÜD Product Service GmbH
Master TRF.....	Dated 2017-11-03

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description.....	Off-grid inverter
Trade Mark.....	N/A
Manufacturer.....	INVT Solar Technology (ShenZhen) Co., Ltd.
	6th Floor, Block A, INVT Guangming Technology Building, Kejie Fourth Road, Shutianpu Community, Matian Guangming District, 518000 Shenzhen, PEOPLE'S REPUBLIC OF CHINA
Model/Type reference.....	XN12048-MAX
Ratings.....	See the rating labels.

Summary of testing: The product has been tested according to standard IEC 61683:1999.
List of Attachments (including a total number of pages in each attachment): This test report contains 2 parts listed in below table. **Photos (4 pages)**
Test item particulars.....:
Equipment mobility .....: ☐ movable ☐ hand-held ☐ stationary ☒ fixed ☐ transportable ☐ for building-in
Connection to the mains.....: ☐ pluggable equipment ☐ direct plug-in ☒ permanent connection ☐ for building-in
Enviromental category.....: ☒ outdoor ☐ indoor unconditional ☐ indoor conditional
Class of equipment .....: ☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Mass of equipment (kg).....: 14.8
IP protection class.....: IP21
Possible test case verdicts:
- test case does not apply to the test object.....: N(/A, Not applicable)
- test object does meet the requirement.....: P (Pass)
- test object does not meet the requirement .....: F (Fail)
Testing .....:
Date of receipt of test item.....: October 21,2025
Date (s) of performance of tests .....: October 21,2025-October 31,2025

General remarks:

(see Attachment #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

The tests results presented in this report relate only to the object tested.

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List of test equipment must be kept on file and available for review.

Additional test data and/or information provided in the attachments to this report

Throughout this report a comma / point is used as the decimal separator.

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....:	☐ **Yes** ☒ **Not applicable**

General product information:

its degree of protection is IP21

Copy of marking plate:

Rating labels:

invt

Off-grid Inverter
XN12048-MAX

General Info	Operating Temperature Range	-10℃...60℃
	IP Grade	IP21
	Safety Class	I
	Max Parallel	NA
AC Output	Rated Power a.c.	12000VA/12000W
	Rated Voltage a.c.	230V
	Rated Frequency	50Hz/60Hz
	Rated Current a.c.	52.2A
Battery	Voltage Range d.c.	40-60V
	Rated Voltage d.c.	48V
AC Input	Voltage Range a.c.	90-280V
	Frequency	50Hz/60Hz
	Max AC Bypass Current a.c.	70A
	Max AC Charge Current d.c.	160A
PV Input	Max Power d.c.	7500W+7500W
	Max Open Voltage d.c.	500V
	Max Input Current d.c.	22.5A+22.5A
	MPPT Input Voltage Rang d.c.	60-450V
	Max PV Charge Current d.c.	160A

S/N:

Made in China

IEC 61683			
Clause	Requirement + Test	Result - Remark	Verdict
4	Efficiency measurement conditions		P
	Efficiency shall be measured under the matrix of conditions as described in the following clauses and table 1. Specific conditions may be excluded by mutual agreement when those conditions are outside the manufacturer's allowable operating range. The resulting data shall be presented in tabular form and may also be presented graphically.	(See test data record)	P
4.1	DC power source for testing		P
	For power conditioners operating with fixed input voltage, the d.c. power source shall be a storage battery or constant voltage power source to maintain the input voltage.		N/A
	For power conditioners that employ maximum power point tracking (MPPT) and shunt-type power conditioners, either a photovoltaic array or a photovoltaic array simulator shall be utilized.	PV array simulator used.	P
4.2	Temperature	(See test data record)	P
	All measurements are to be made at an ambient temperature of 25 °C ± 2 °C. Other ambient temperatures may be allowed by mutual agreement. However, the temperature used must be clearly stated in all documentation.		P
4.3	Output voltage and frequency		P
	The output voltage and frequency shall be maintained at the manufacturer's stated nominal values.	(See test data record)	P
4.4	Input voltage		P
	Measurements performed in each of the following tests shall be repeated at three power conditioner input voltages: a)manufacturer's minimum rated input voltage; b)the inverter's nominal voltage or the average of its rated input range; c)90 % of the inverter's maximum input voltage.	(See test data record)	P
	In the case where a power conditioner is to be connected with a battery at its input terminals, only the nominal or rated input voltage may be applied.		N/A
4.5	Ripple and distortion		N

IEC 61683			
Clause	Requirement + Test	Result - Remark	Verdict
	Record input voltage and current ripple for each measurement. Also record output voltage and current distortion (if a.c.) or ripple (if d.c.). Ensure that these measurements remain within the manufacturer's specified values. Note that ripple and distortion may not be specified at low power levels, but readings shall be recorded.		N
4.6	Resistive loads/utility grid		P
	At unity power factor, or at the intrinsic power factor of grid-connected inverters without power factor adjustment, measure the efficiency for power levels of 10 %, 25 %, 50 %, 75 %, 100 % and 120 % of the inverter's rating. Stand-alone inverters shall also be measured at a power level of 5 % of rated. The power conditioner test should be conducted with a specified resistive and reactive grid impedance.	(See test data record)	P
4.7	Reactive loads		N/A
	For stand-alone inverters, measure the efficiency with a load which provides a power factor equal to the manufacturer's specified minimum level (or 0,25, whichever is greater) and at power levels of 25 %, 50 % and 100 % of rated VA. Repeat for power factors of 0,5 and 0,75(do not go below the manufacturer's specified minimum PF) and power levels of 25 %, 50 %,and 100 % of rated VA.		N/A
4.8	Resistive plus non-linear loads		N/A
	For stand-alone inverters, measure the efficiency with a fixed non-linear load (total harmonic distortion (THD) = (80 ± 5) %) equal to (25 ± 5) % of the inverter's rated VA plus sufficient resistive load in parallel to achieve a total load of 25 %, 50 % and 100 % of rated VA. Repeat the measurements with a fixed non-linear load equivalent to (50 ± 5) % of the inverter’s rated VA plus sufficient resistive load in parallel to achieve a total load of 50 % and 100 %of rated VA. The type of non-linear load must be clearly stated in all documentation.		N/A
4.9	Complex loads		N/A
	When a non-linear plus a sufficient reactive load condition is specified for stand-alone inverters, measure the efficiency with a fixed non-linear load (THD = (80 ± 5) %) equal to (50 ± 5) % of the inverter's rated VA plus a sufficient reactive load (PF = 0,5) in parallel to achieve a total load of 50 % and 100 % of rated VA. The type of complex load shall be clearly stated in all documentation.		N/A

IEC 61683			
Clause	Requirement + Test	Result - Remark	Verdict
5	Efficiency calculations		P
5.1	Rated output efficiency	(See test data record)	P
	Rated output efficiency shall be calculated from measured data as follows: η_R=(Po / Pi) x100	(See test data record)	P
5.2	Partial output efficiency		P
	Partial output efficiency shall be calculated from measured data as follows: η_{par}=(Pop / Pip) x100	(See test data record)	P
5.3	Energy efficiency		P
	Energy efficiency shall be calculated from measured data as follows: η_E=(Wo / Pi) x100	(See test data record)	P
5.4	Efficiency tolerances		P
	When an efficiency value has been guaranteed, the tolerance of this value shall be within the value at rated conditions indicated in table 2.	(See test data record)	P
6	Efficiency test circuits		P
6.1	Test circuits		P
	Figure 1 shows recommended test circuits for power conditioners which have a single-phase a.c. output or d.c. output. It can as well be regarded as a single-phase representation of a test set-up for multiphase power conditioners.		P
	Figures 1a and 1b shall be applied to stand-alone and utility-interactive power conditioners respectively.		P
	The proposed test circuits in figure 1 are not mandatory, but together with the test descriptions, are intended to establish a base for mutual agreement between user and manufacturer.		P
	The type of power source shall be indicated on all tests and shall adhere to the requirements of 4.1.		P
6.2	Measurement procedure		P
	a) Efficiency is calculated with equation (1) or (2) using measured Pi, Po or Pip, Pop. DC input power Pi, Pip can be measured by wattmeter W1, or determined by multiplying the d.c. voltmeter V1 and d.c. ammeter A1 readings. Output power Po, Pop is measured with wattmeter W2.		P

IEC 61683			
Clause	Requirement + Test	Result - Remark	Verdict
	b) DC input voltage, which is measured by d.c. voltmeter V1, shall be varied in the defined range where the output current, which is measured with a.c. ammeter A2, is varied from low output to the rated output.		P
	c) An average indicating instrument shall be used for the d.c. voltmeter and d.c. ammeter. A true r.m.s. type of indicating instrument shall be used for the a.c. voltmeter and a.c. ammeter. The d.c. wattmeter W1 shall be a d.c. measuring type. The wattmeter W2 shall be an a.c. or d.c. measuring type according to the output.		P
	D)Power factor (PF in per cent) can be measured by a power factor meter PF, or calculated from the readings of V2, A2, W2 and as follows: $PF=(W_2 / (V_2 \times A_2)) \times 100$		P
	e) Each meter may be an analogue type or a digital type. The measurement accuracy shall be better than ±0,5 % of the full-scale value for each power measured. Digital power instruments for W1 and W2 are also recommended.		P
	f) An MPPT dynamically adjusts the input voltage so as to maximize the output power. In principle, the monitoring equipment shall sample all of the electrical parameters, such as input voltage and current, output power and current, within the update period of the MPPT. If the MPPT and input source (PV array or PV array simulator) interact in such a way that the input voltage varies by less than 5 %, then averaging of readings is acceptable. The averaging period shall be 30 s or longer.		P
7	Loss measurement		P
7.1	No-load loss		P
	No-load loss shall be measured as follows.		P
	If the power conditioner is a stand-alone type, the reading of d.c. input voltage, output voltage and frequency is given with meters V1, V2 and F respectively in figure 1a, and shall be adjusted to the rated values.		P
	The no-load loss is thus the indicated value of d.c. input wattmeter, W1, when the load is disconnected from the power conditioner.		P

IEC 61683			
Clause	Requirement + Test	Result - Remark	Verdict
	If the power conditioner is a utility-interactive type, the reading of d.c. input voltmeter V1, a.c. output voltmeter V2 and frequency meter F in figure 1b shall be adjusted to meet the specified voltages and frequency.		P
	No-load loss is thus the indicated value of d.c. input wattmeter, W1, when a.c. wattmeter, W2, indicates a zero value. For the measurement, allow the power conditioner time to transfer to its no-load operating state, if applicable.		P
7.2	Standby loss	(See test data record)	P
	Standby loss shall be measured as follows.		P
	If the power conditioner is a utility-interactive type, standby loss is defined as the consumption of utility power when the power conditioner is not operating but is under standby condition. Standby loss is indicated with a.c. wattmeter, W2 in figure 1b at the rated a.c. output voltage.		P
	If the power conditioner is a stand-alone type, standby loss is defined as the consumption from the d.c. source when the power conditioner is not operating but is under standby condition. Standby loss is indicated with d.c. wattmeter, W1 in figure 1a (without a.c. or d.c. output voltage).		P
Annex A	**Power conditioner description**		P
	A power conditioner is defined in IEC 61277.		P
	Some types of photovoltaic system configurations relate to their purpose and size. Figure A.1 shows the generic system configuration proposed in IEC 61277. In figure A.1, the power conditioner (PC) is inside the dotted line. The power conditioner may consist of one or more of the following: d.c. conditioner, d.c./d.c. interface, inverter, a.c./a.c. interface, a.c. utility interface, and a part of master control and monitoring (MCM) subsystem. The power flows are indicated by the arrows. When a PV system has a d.c. storage subsystem, it is assumed that the storage is connected to the input of the power conditioner in parallel with the array (see figures A.2 and A.3).		P

IEC 61683			
Clause	Requirement + Test	Result - Remark	Verdict
	Under normal conditions, the power conditioner a.c. output voltage and frequency are constant value when the system is connected to the utility grid (in a utility- interactive type) or to the a.c. loads (in a stand-alone type). However, when a.c. loads consist of pumps or blowers with variable speed induction motors, the a.c. voltage and frequency may be variable.		P
	In this standard, systems with a constant a.c. output voltage and frequency as well as systems with a d.c. output are discussed. Figures A.2 and A.3 show the configuration of the PV system and the power conditioner described in this standard.		P
Annex B	**Power efficiency and conversion factor**		P
	There are two types of efficiencies shown in IEC 60146-2; one is a power efficiency, the other is a conversion factor. Power efficiency is defined as the ratio of active output power and active input power. Conversion factor is the ratio between output and input fundamental power levels. The formulae for these two parameters: $\eta_P = (P_{aAC}/P_{aDC}) \times 100 \quad (\%)$ $\eta_C = (P_{fAC}/P_{fDC}) \times 100 \quad (\%)$ η_P is the power efficiency; P_{aAC} is the a.c. active power; P_{aDC} is the d.c. active power; η_C is the conversion factor; P_{fAC} is the a.c. fundamental power; P_{fDC} is the d.c. mean power (mean voltage × mean current).	(See test data record)	P
	Active power Pa is calculated as $P_a = \frac{1}{T}\int_0^T v(t)i(t)\mathrm{d}t$ or $= \frac{1}{T}\int_0^T p(t)\mathrm{d}t$	(See test data record)	P
	The difference between the above two efficiencies is due to the evaluation of the harmonic components. IEC 60146 unifies them into power efficiency. Their differences depend on their voltage and current waveforms as shown in table B.1 and are only meaningful in case 5. Considering the purpose of IEC standards and the illustration in table B.1, the power efficiency is used as the efficiency of power conditioners		P

IEC 61683			
Clause	Requirement + Test	Result - Remark	Verdict
	As shown in table B.1, case 1 or case 4, the difference between C and P is only 0,1% when the d.c. voltage and current ripple are 10 %pp, or when a.c. 5th r.m.s. voltage content is 2 % and the 5th current content is 5 %. This means that the conversion factor is practically the same as the power efficiency. It shall, however, be noted that in the case of a square wave, as in case 5, the power efficiency shall be used because the difference is large, i.e., ηC/ηP = 0.81.		N
	The integration time (duration of one cycle) T shall be 30s or more and the resultant mean power efficiency value shall be used as the efficiency of the power conditioner.		P
Annex C	**Weighted-average energy efficiency**		P
	The energy of a power conditioner depends on both the irradiance profile and the load profile. The energy efficiency of a power conditioner shall be calculated by the ratio of the output to the input energy actually measured over a certain period (such as a month or a year).		P
	For reference, a method of estimating the energy efficiency using a weighted-average energy efficiency is described.		P
	The weighted-average energy efficiency, ηWT , is calculated as the sum of the products of each power level efficiency and related weighting coefficient.		P
	When the system is a utility-interactive type without a storage subsystem, the weighting coefficients depend on a regional irradiance duration curve.		P
	When the system is a stand-alone type with a storage subsystem, the weighting coefficients depend on the load duration curve.		P
	Clauses C.1 and C.2 show the calculation procedures for ηWT for utility-interactive systems and stand-alone systems.		P
C.1	**ηWT of power conditioner for utility-interactive PV systems**		P

IEC 61683			
Clause	Requirement + Test	Result - Remark	Verdict
	Utility-interactive PV systems, which have no storage and for which reverse-power flow is accepted, are described. In this case, d.c. power generated by the PV array is supplied direct into the power conditioner (PC). Almost all of the input power to the PC is converted to a.c. power. A part of it is dissipated as the PC loss.		P
	The weighted-average energy efficiency, □WT, is an index to evaluate annual energy efficiency in which a weighting coefficient, Ki, is used for each input power level. Here, the irradiance is divided into several discrete levels. By using a duration time Ti, d.c. input power level, PIi, output power level, POi, and PC efficiency, □ i, for each level i, □WT is defined as follows: $\eta_{WT} = \frac{\sum P_{Oi} \cdot T_i}{\sum P_{Ii} \cdot T_i} = \frac{P_{I1} \cdot \eta_1 \cdot T_1 + \cdots + P_{In} \cdot \eta_n \cdot T_n}{P_{I1} \cdot T_1 + \cdots + P_{In} \cdot T_n}$ $= K_1 \cdot \eta_1 + K_2 \cdot \eta_2 + \cdots + K_n \cdot \eta_n$		P
	If the irradiance duration curve is given as shown in figure C.1, equation (C.1) can be rewritten as follows: $\eta_{WT} = \frac{1T_1}{T_{WT}}\eta_{1/4} + \frac{2T_2}{T_{WT}}\eta_{2/4} + \frac{3T_3}{T_{WT}}\eta_{3/4} + \frac{4T_4}{T_{WT}}\eta_{4/4} \geq \eta_{ER}$ $T_{WT} = 1T_1 + 2T_2 + 3T_3 + 4T_4$		P
C.2	**ηWT of power conditioner for stand-alone PV systems**	Non stand-alone PV systems.	N/A
	In stand-alone PV systems with a storage subsystem, power generated from the PV array is stored and stabilized by the batteries. DC power is converted into regulated d.c. power or constant-voltage and constant- frequency a.c. power by a power conditioner (PC) and supplied to the load. In this case, some fraction of the generated power is dissipated as a loss in the batteries and power conditioner.		N/A
	The calculation of the weighted-average energy efficiency, □WT, for stand-alone PV systems requires weighting coefficients for respective load levels.		N/A

IEC 61683			
Clause	Requirement + Test	Result - Remark	Verdict
	By using a load duration time Ti, d.c. input power Pli, a.c. output power POi and PC efficiency for respective load level □i, □WT is defined as follows: $\eta_{WT} = \frac{\sum P_{Oi} \cdot T_i}{\sum P_{Ii} \cdot T_i} = \frac{\sum P_{O1} \cdot T_1 + \cdots + P_{On} \cdot T_n}{P_{I0} \cdot T_0 + P_{O1} \cdot T_1/\eta_1 + P_{On} \cdot T_n/\eta_n}$ $= \frac{1}{K_0 + K_1/\eta_1 + \cdots + K_n/\eta_n}$ $K_0 = P_{I0} \cdot T_0 / \sum (P_{Oi} \cdot T_i)$ $K_i = P_{Oi} \cdot T_i / \sum (P_{Oi} \cdot T_i), \ \sum K_i = 1$		N/A
	If the load profile and its duration curve are given as shown in figures C.2 and C.3, equation (C.3) can be rewritten as follows: $\eta_{WT} = \frac{1}{K_0 + 1T_1/T_{WT}/\eta_{1/4} + 2T_2/T_{WT}/\eta_{2/4} + 3T_3/T_{WT}/\eta_{3/4} + 4T_4/T_{WT}/\eta_{4/4}} \geq \eta_{ER}$		N/A
Annex D	**Derivation of efficiency tolerance**		P

Power efficiency

Model: --

Test condition: Rated input voltage: 300Vdc, Resistive load:

Power level	10%	25%	50%	75%	100%	120%
Input voltage (V)	296.1	296.8	296.6	296.4	295.6	--
Input voltage ripple (V)	--	--	--	--	--	--
Input current (A)	4.23	9.77	21.20	31.37	42.91	--
Input current ripple (A)	--	--	--	--	--	--
Input power (Pi) (W)	1253.95	2900.68	6288.67	9297.54	12684.55	--
Output power (Po) (W)	1185.10	2774.79	6082.66	8941.32	11923.30	--
Output efficiency(%)	94.51	95.66	96.72	96.17	94.00	--
Input energy (Wi) (Wh)	209.04	491.35	968.17	1452.70	1946.90	--
Output energy (Wo) (Wh)	197.56	490.87	936.46	1397.03	1830.06	--
Energy efficiency(%)	94.51	95.67	96.72	96.17	94.00	--

b) Test condition: Rated input voltage: 375Vdc, Resistive load:

Power level	10%	25%	50%	75%	100%	120%
Input voltage (V)	371.67	372.37	374.61	375.1	373.27	--
Input voltage ripple (V)	--	--	--	--	--	--
Input current (A)	3.28	8.44	16.04	24.96	32.94	--
Input current ripple (A)	--	--	--	--	--	--
Input power (Pi) (W)	1219.82	3141.89	6007.05	9362.85	12295.33	--
Output power (Po) (W)	1180.67	2918.96	5851.61	8905.84	11797.48	--
Output efficiency(%)	96.79	92.90	97.41	95.12	95.95	--
Input energy (Wi) (Wh)	201.11	483.01	957.88	1438.26	1923.57	--
Output energy (Wo) (Wh)	194.65	448.73	933.10	1368.06	1845.69	--
Energy efficiency(%)	96.79	92.90	97.41	95.12	95.95	--

c) Test condition: Rated input voltage: 450Vdc, Resistive load:

Power level	10%	25%	50%	75%	100%	120%
Input voltage (V)	450.11	450.19	450.37	450.84	451.24	--

Input voltage ripple (V)	--	--	--	--	--	--
Input current (A)	3.07	7.07	13.92	20.42	27.65	--
Input current ripple (A)	--	--	--	--	--	--
Input power (Pi) (W)	1380.74	3182.49	6269.04	9208.07	12478.78	--
Output power (Po) (W)	1185.98	2930.54	5950.04	8900.05	11871.43	--
Output efficiency(%)	85.89	92.08	94.91	96.65	95.13	--
Input energy (Wi) (Wh)	187.95	482.80	958.44	1441.77	1930.10	--
Output energy (Wo) (Wh)	161.45	444.57	909.67	1393.55	1836.16	--
Energy efficiency(%)	85.89	92.08	94.91	96.65	95.13	--

7 Loss measurement

7,1 No-load loss

a) manufacturer's minimum rated input voltage: 300Vdc

Input voltage (V)	Input current (A)	Input power W1 (W)	Output voltage (V)	Frequency (Hz)	Output power W2 (W)
300.43	0.15	43.67	--	--	0

b) the inverter's nominal voltage or average of its rated input range: 375Vdc

Input voltage (V)	Input current (A)	Input power W1 (W)	Output voltage (V)	Frequency (Hz)	Output power W2 (W)
375.36	0.12	45.10	--	--	0

c) 90% of the inverter's maximum input voltage: 450Vdc

Input voltage (V)	Input current (A)	Input power W1 (W)	Output voltage (V)	Frequency (Hz)	Output power W2 (W)
450.14	0.10	44.38	--	--	0

7.2 Standby loss

Input voltage (V)	Input power W1 (W)	Output voltage (V)	Frequency (Hz)	Output current (A)	Output power W2 (W)
450	39.64	230.21	50.01	0	0

picture

Fig. 1 --Over view I

Fig. 2 --Over view II

picture

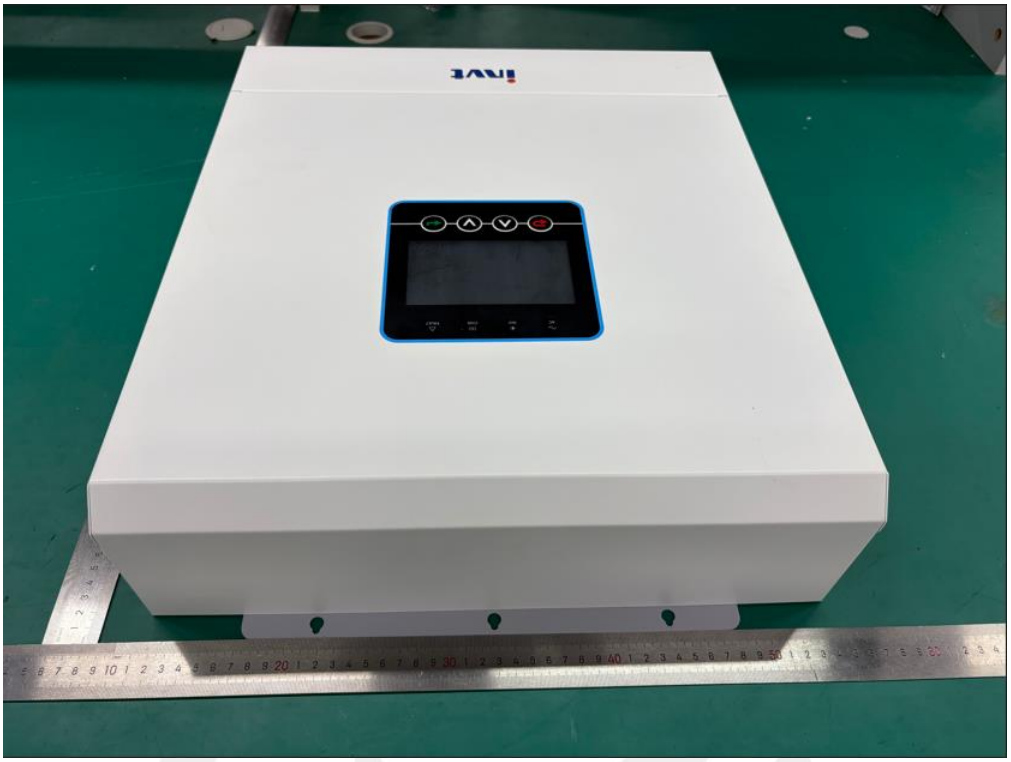

Fig. 3 --Over view III

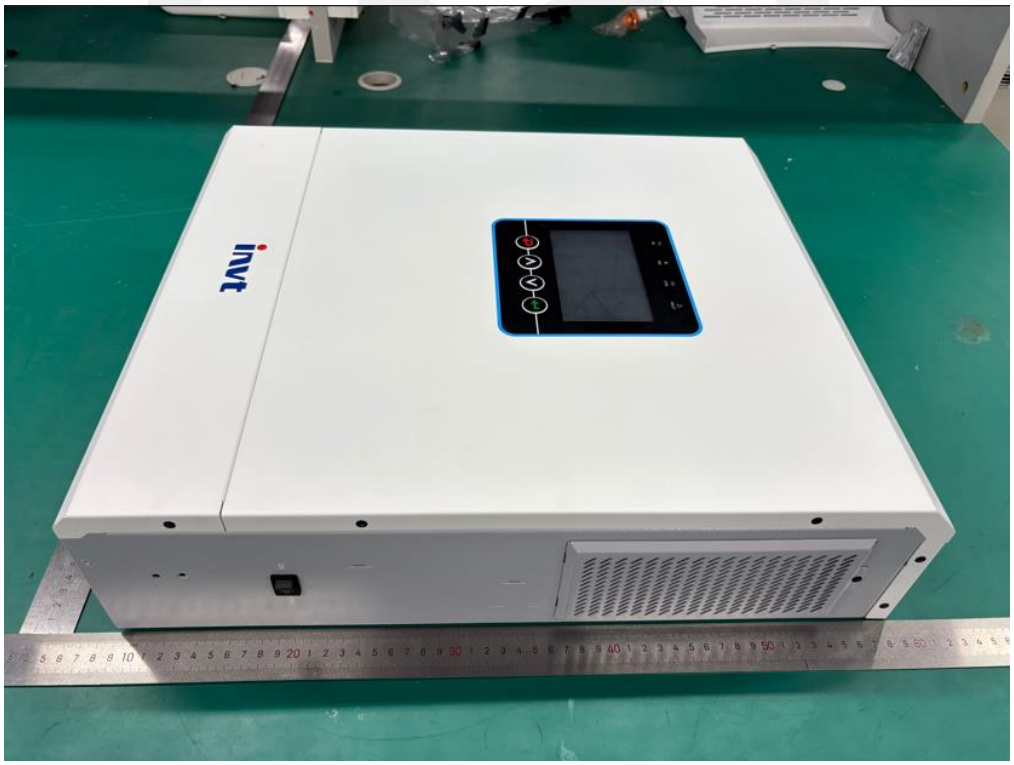

Fig. 4 --Over view IV

picture

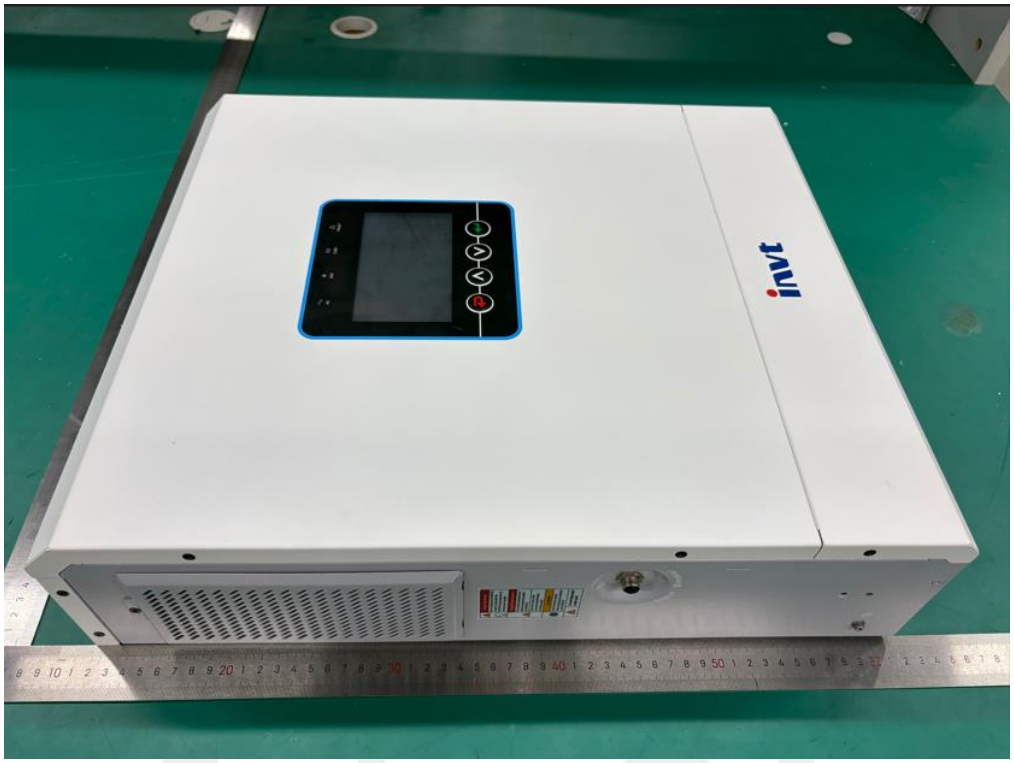

Fig. 5 --Over view IV

*** End of Report ***

Statement

1．This report is invalid without the signature of the authorized approver and "special seal for testing".

2．This report shall not be copied partly without authorization.

3．The test results or observations are applicable only to tested sample. Client shall be responsible for representativeness of the sample and authenticity of the material.

4．The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.

5．The test results or observations are provided in accordance with measured value, without taking risks caused by uncertainty into account. Without explicit stipulation in special agreements, standards or regulations, EMTEK shall not assume any responsibility.

6．Objections shall be raised within 20 days from the date receiving the report.