



Test Report issued under the responsibility of:



TEST REPORT Engineering Recommendation EN 50549-1:2019 Requirements for the connection of generation equipment in parallel with public distribution networks	
Report Reference No.	210700186SHA-001
Tested by (name + signature)	Issac Chen <i>Issac Chen</i>
Approved by (name + signature)	Sleif sui <i>Sleif sui</i>
Date of issue	2021-07-01 Amendment 1: 2023-02-21
Contents	8 pages
Testing Laboratory	Intertek Testing Services Shanghai.
Address	Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, China.
Testing location / address	Same as above
Applicant's name	Afore New Energy Technology (Shanghai)Co., Ltd.
Address	Build No.7, 333 Wanfang Road, Minhang District, Shanghai. China. 201112
Test specification:	
Standard	EN 50549-1:2019 Requirements for the connection of generation equipment in parallel with public distribution networks.
Test procedure	testing
Non-standard test method	N/A
Test Report Form/blank test report	
Test Report Form No.	TTRF_ 50549-1
TRF Originator	Intertek Shanghai
Master TRF	2019-11
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Test item description	Grid-connected PV inverter
Trade Mark	Afore
Manufacturer	Same as applicant
Model/Type reference.....	BNT003KTL, BNT004KTL, BNT005KTL, BNT006KTL, BNT008KTL, BNT010KTL, BNT012KTL, BNT013KTL, BNT015KTL, BNT017KTL, BNT020KTL, BNT025KTL
Rating.....	See below Specifications table

Specifications table				
Model	BNT003KTL	BNT004KTL	BNT005KTL	BNT006KTL
Input:				
Vmax PV (Vdc)	1100	1100	1100	1100
Isc PV (absolute Max.) (A)	25 x 2	25 x 2	25 x 2	25 x 2
Number MPP trackers	2	2	2	2
Number input strings	1/1	1/1	1/1	1/1
Max. PV input current(A)	15 x 2	15 x 2	15 x 2	15 x 2
MPPT voltage range (Vdc)	150-1000	150-1000	150-1000	150-1000
Vdc range @ full power (Vdc)	200-850	200-850	200-850	250-850
Output				
Normal Voltage(V)	3P+N+PE/3P+PE 230/400Vac			
Frequency (Hz)	50Hz			
Current (normal) (A)	4.4	5.8	7.3	8.7
Current (Max. continuous) (A)	5.3	7	8.5	10.5
Power rating (W)	3000	4000	5000	6000
Power Rating (VA)	3000	4000	5000	6000
Power factor /rated	1 (-0.8~+0.8 adjustable)	1 (-0.8~+0.8 adjustable)	1 (-0.8~+0.8 adjustable)	1 (-0.8~+0.8 adjustable)
others				
Protective class	Class I			
Ingress protection (IP)	IP 65			
Temperature (°C)	-25°C to +60°C (up 45°C derating)			
Inverter Isolation	Non-isolated			
Overtoltage category	OVC III (AC Main), OVC II (PV)			
Software version:	DSP: V06 CPLD: V06 HMI: V06			

Specifications table				
Model	BNT008KTL	BNT010KTL	BNT012KTL	BNT013KTL
Input:				
Vmax PV (Vdc)	1100	1100	1100	1100
Isc PV (absolute Max.) (A)	25 x 2	25 x 2	25 x 2	25 x 2
Number MPP trackers	2	2	2	2
Number input strings	1/1	1/1	1/1	1/1
Max. PV input current(A)	15 x 2	15 x 2	15 x 2	15 x 2
MPPT voltage range (Vdc)	150-1000	150-1000	150-1000	150-1000
Vdc range @ full power (Vdc)	300-850	500-850	500-850	500-850
Output				
Normal Voltage(V)	3P+N+PE/3P+PE 230/400Vac			
Frequency (Hz)	50 Hz			
Current (normal) (A)	11.6	14.5	17.4	18.9
Current (Max. continuous) (A)	13.5	17	21.5	22
Power rating (W)	8000	10000	12000	13000
Power Rating (VA)	8000	10000	12000	13000
Power factor /rated	1 (-0.8~+0.8 adjustable)	1 (-0.8~+0.8 adjustable)	1 (-0.8~+0.8 adjustable)	1 (-0.8~+0.8 adjustable)
others				
Protective class	Class I			
Ingress protection (IP)	IP 65			
Temperature (°C)	-25°C to +60°C (up 45°C derating)			
Inverter Isolation	Non-isolated			
Overtoltage category	OVC III (AC Main), OVC II (PV)			
Software version:	DSP: V06 CPLD: V06 HMI: V06			

Specifications table				
Model	BNT015KTL	BNT017KTL	BNT020KTL	BNT025KTL
Input:				
Vmax PV (Vdc)	1100	1100	1100	1100
Isc PV (absolute Max.) (A)	30 + 48	48 x 2	48 x 2	48 x 2
Number MPP trackers	2	2	2	2
Number input strings	1/2	2/2	2/2	2/2
Max. PV input current(A)	20+32	32 x 2	32 x 2	32 x 2
MPPT voltage range (Vdc)	150-1000	150-1000	150-1000	150-1000
Vdc range @ full power (Vdc)	500-850	500-850	500-850	500-850
Output				
Normal Voltage(V)	3P+N+PE/3P+PE 230/400Vac			
Frequency (Hz)	50 Hz			
Current (normal) (A)	21.8	24.7	29	36.3
Current (Max. continuous) (A)	27	30	32	40
Power rating (W)	15000	17000	20000	25000
Power Rating (VA)	15000	17000	20000	25000
Power factor /rated	1 (-0.8~+0.8 adjustable)	1 (-0.8~+0.8 adjustable)	1 (-0.8~+0.8 adjustable)	1 (-0.8~+0.8 adjustable)
others				
Protective class	Class I			
Ingress protection (IP)	IP 65			
Temperature (°C)	-25°C to +60°C (up 45°C derating)			
Inverter Isolation	Non-isolated			
Overtoltage category	OVC III (AC Main), OVC II (PV)			
Software version:	DSP: V06 CPLD: V06 HMI: V06			

Summary of testing:	
Tests performed (name of test and test clause): None	Testing location: Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, China

<p>Test item particulars..... :</p> <p>Temperature range..... : -25°C ~60°C</p> <p>IP protection class : IP 65</p>
<p>Possible test case verdicts:</p> <p>- test case does not apply to the test object..... : N/A</p> <p>- test object does meet the requirement : P(Pass)</p> <p>- test object does not meet the requirement : F(Fail)</p>
<p>Testing..... :</p> <p>Date of receipt of test item..... : --</p> <p>Date (s) of performance of tests..... : --</p>
<p>General remarks:</p> <p>The test results presented in this report are only to the object (single power inverter unit) tested and base on Low Voltage connected on small power station.</p> <p>Installer and relevant persons shall comply with EN 50549-1:2019, Local code and Grid Code in EN 50549-1:2019.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> <p>"(see Enclosure #)" refers to additional information appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a point is used as the decimal separator.</p> <p>Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.</p> <p>Determination of the test result includes consideration of measurement uncertainty from the test equipment and methods.</p> <p>The test results presented in this report relate only to the item tested. The results indicate that the specimen partially complies with standard" EN 50549-1:2019". See general product information next for details information.</p>
<p>General product information:</p> <p>The testing item is a grid-connected type inverter for indoor or outdoor installation.</p> <p>The Inverter is three-phase type and non-isolated between input and output.</p> <p>Power controlled by software because output power is different.</p> <p>The value of fixed Q in experiment 4.7.2 shall be declared by the manufacturer with the range of 0-50%.</p> <p>The model BNT025KTL is as the representative test models in this report.</p> <p>The installer shall provide the warning label of compliance with EN 50549-1:2019.</p> <p>Password protection is for parameter seeing, and not available for operators.</p>

Copy of marking plate:

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Mode: 003 004 005 006 008 010
BNTxxxKTL

Pdc Max (W)	5100	6000	7500	9000	12000	15000
Voc PV Max (V)	1100					
Vdc MPPT (V)	150-1000					
Idc Max (A)	15 x 2					
Isc PV Max (A)	25 x 2					
Pac Nom (W)	3000	4000	5000	6000	8000	10000
Iac Max (A)	5.3	7	8.5	10.5	13.5	17
Vac Nom (V)	3P+N+PE / 3P+PE 230/400					

Mode: 012 013 015 017 020 025
BNTxxxKTL

Pdc Max (W)	18000	19500	22500	25500	30000	37500
Voc PV Max (V)	1100					
Vdc MPPT (V)	150-1000					
Idc Max (A)	15 x 2	15 x 2	20+32	32 x 2	32 x 2	32 x 2
Isc PV Max (A)	25 x 2	30+48	48 x 2			
Pac Nom (W)	12000	13000	15000	17000	20000	25000
Iac Max (A)	21.5	22	27	30	32	40
Vac Nom (V)	3P+N+PE / 3P+PE 230/400					
Fac Nom (Hz)	50					
Power Factor	1 (-0.8~+0.8 adjustable)					
Protective Class	I					
Operating temperature range	-25 ~ +60 C (Derating 45 C)					
IP Degree	IP65					

S/N T06021-04

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Remark:

1.The information covered by aaa on marking plate was irrelevant to this report

Amendment 1:

The original Test Report Ref. No. 210700186SHA-001 dated on 2021-07-01 was modified on 2023-02-21 to include the following addition:

1. The parameters of Model BNT012KT and BNT013KTL were changed as following:

The PV current at short-circuit (absolute Max.) was changed from 15+26 A to 15x2 A.

The maximum PV input current was changed from 15+26 A to 15x2 A, and the number of strings of PV input was changed from 1/2 to 1/1.

2. The parameters of Model BNT015KT were changed as following:

The PV current at short-circuit (absolute Max.) was changed from 25+48 A to 30+48 A.

The maximum PV input current was changed from 15+26 A to 20+32 A.

3. The parameters of Model BNT017KTL, BNT020KTL, BNT025KTL were changed as following:

The maximum PV input current was changed from 26x2 A to 32x2 A.

4. Updated the marking plate due to change of above rating parameters.

After review, no test was considered necessary in this report.

Clauses concerned.....:

Copy of marking plate