



TL-395

TEST REPORT CEI 0-21 Reference technical rules for connection of active and passive users to the LV electrical Utilities	
Report Reference No.	220916022GZU-001
Date of issue.....	22 Sep 2022
Total number of pages.....	150 pages
Testing Laboratory	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Address	Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou, Guangdong, China
Tested by (name + signature)	Gaison Li Engineer <i>Gaison Li</i>
Approved by (+ signature).....	Jason Fu Supervisor <i>Jason Fu</i>
Applicant's name	INVT Solar Technology (Shenzhen) Co., Ltd.
Address	6 th 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	CEI 0-21: 2022
Test procedure	Type approval
Non-standard test method.....	N/A
Test Report Form No.	CEI 0-21b
Test Report Form(s) Originator	Intertek Guangzhou
Master TRF.....	Dated 2019-04
This publication may be reproduced in whole or in part for non-commercial purposes as long as Intertek is acknowledged as copyright owner and source of the material. Intertek takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.	

Test item description	: Hybrid Solar Storage System
Trade Mark	: invt
Manufacturer	: Same as applicant
Model/Type reference.....	: Inverter conversion device: BD3KTL-RL1, BD3K6TL-RL1, BD4KTL-RL1, BD4K6TL-RL1, BD5KTL-RL1, BD6KTL-RL1 Brands: invt Batteries and BMS - Battery Management System Battery module model: CFE-5100 Battery pack: CFE-5100 High voltage control model: BSB7-100 Brands: CFE Batteries and BMS - Battery Management System Battery module model: VT48100E-P1 Battery pack: VT48100E-P1 High voltage control model: IPB042N10N3 Brands: VESTWOODS
Inverter Firmware Version	: V1.0
Number of phases	: Single-phase
Nominal Power	: 3000W (BD3KTL-RL1), 3680W (BD3K6TL-RL1), 4000W (BD4KTL-RL1)
Type.....	: 4600W (BD4K6TL-RL1), 5000W (BD5KTL-RL1), 6000W (BD6KTL-RL1)
CUS (useful capacity of the storage system)	: Bidirectional
Psn (nominal discharge power)	: 4.8kWh
Pcn (nominal charge power)	: 3800W(CFE-5100), 4800W(VT48100E-P1)
Psmax (maximum discharge power) :	: 3000W(CFE-5100), 4800W(VT48100E-P1)
Pcmax (maximum charge power)	: 3800W(CFE-5100), 4800W(VT48100E-P1)
BMS Firmware Version.....	: 3000W(CFE-5100), 4800W(VT48100E-P1) V0146(CFE-5100), V1.9(VT48100E-P1)
Ratings	: Detailed also refer to page 6-7

Battery		CUS (useful capacity of the storage system)	
Basic Model	Manufacturer	Capacity of per battery module (kWh)	Number of Battery pack
CFE-5100	CF Energy Co., Ltd.	4.8	1
VT48100E-P1	Hangzhou Vestwoods Technology Co., LTD.	4.8	1

Note:
1. Batteries are not integrated within the inverter, and shall be installed according to local regulation.

Summary of testing:

Tests performed (name of test and test clause):




See following page 10 -17 for details




Testing location:




Intertek Testing Services Shenzhen Ltd. Guangzhou Branch

Room 02, &
101/E201/E301/E401/E501/E601/E701/E801 of
Room 01 1-8/F., No. 7-2. Caipin Road, Science City,
GETDD, Guangzhou, Guangdong, China

Marking plate

invt	
Hybrid Solar Inverter	BD3KTL-RL1
PV input parameter	
Max PV Input:	4.6KWp
Mppt input Vol:	125~500V
Max PV Current:	14A*2
Isc PV:	17.5A*2
AC output parameter (On-grid)	
Max Apparent Output Power:	3KVA
Max AC current:	13A
Grid Voltage (Optional):	230V
Grid Frequency (Optional):	50/60Hz
Power Factor Range:	[-0.99,0.99]
AC output parameter(Buck-up)	
Max Apparent Output Power:	3KVA
Max Apparent Output current:	13A
AC Voltage (Optional):	230V
AC Frequency (Optional):	50/60Hz
Battery parameter	
Storage type:	LEAD-ACID or Lithium
Battery input voltage:	40-58V
Max. charging Current:	95A
Max. Discharging Current:	62.5A
System	
Ingress Protection:	IP65
Dimensions(W*D*H):	550*200*520mm
Weight:	25Kg
Max. Efficiency:	95%
  	
<div style="border: 1px dashed black; width: 100px; height: 20px; margin: 0 auto;"></div>	
INVT Solar Technology (Shenzhen) Co.,Ltd.	

invt	
Hybrid Solar Inverter	BD3K6TL-RL1
PV input parameter	
Max PV Input:	4.6KWp
Mppt input Vol:	125~500V
Max PV Current:	14A*2
Isc PV:	17.5A*2
AC output parameter (On-grid)	
Max Apparent Output Power:	3.68KVA
Max AC current:	16A
Grid Voltage (Optional):	230V
Grid Frequency (Optional):	50/60Hz
Power Factor Range:	[-0.99,0.99]
AC output parameter(Buck-up)	
Max Apparent Output Power:	3.68KVA
Max Apparent Output current:	16A
AC Voltage (Optional):	230V
AC Frequency (Optional):	50/60Hz
Battery parameter	
Storage type:	LEAD-ACID or Lithium
Battery input voltage:	40-58V
Max. charging Current:	95A
Max. Discharging Current:	76.6A
System	
Ingress Protection:	IP65
Dimensions(W*D*H):	550*200*520mm
Weight:	25Kg
Max. Efficiency:	95%
  	
<div style="border: 1px dashed black; width: 100px; height: 20px; margin: 0 auto;"></div>	
INVT Solar Technology (Shenzhen) Co.,Ltd.	

invt	
Hybrid Solar Inverter	BD4KTL-RL1
PV input parameter	
Max PV Input:	6KWp
Mppt input Vol:	125~500V
Max PV Current:	14A*2
Isc PV:	17.5A*2
AC output parameter (On-grid)	
Max Apparent Output Power:	4KVA
Max AC current:	17.4A
Grid Voltage (Optional):	230V
Grid Frequency (Optional):	50/60Hz
Power Factor Range:	[-0.99,0.99]
AC output parameter(Buck-up)	
Max Apparent Output Power:	4KVA
Max Apparent Output current:	17.4A
AC Voltage (Optional):	230V
AC Frequency (Optional):	50/60Hz
Battery parameter	
Storage type:	LEAD-ACID or Lithium
Battery input voltage:	40-58V
Max. charging Current:	95A
Max. Discharging Current:	83.3A
System	
Ingress Protection:	IP65
Dimensions(W*D*H):	550*200*520mm
Weight:	25Kg
Max. Efficiency:	95%
  	
<div style="border: 1px dashed black; width: 100px; height: 20px; margin: 0 auto;"></div>	
INVT Solar Technology (Shenzhen) Co.,Ltd.	

invt	
Hybrid Solar Inverter	BD4K6TL-RL1
PV input parameter	
Max PV Input:	6KWp
Mppt input Vol:	125~500V
Max PV Current:	14A*2
Isc PV:	17.5A*2
AC output parameter (On-grid)	
Max Apparent Output Power:	4.6KVA
Max AC current:	20A
Grid Voltage (Optional):	230V
Grid Frequency (Optional)	50/60Hz
Power Factor Range:	[-0.99,0.99]
AC output parameter(Buck-up)	
Max Apparent Output Power:	4.6KVA
Max Apparent Output current:	20A
AC Voltage (Optional):	230V
AC Frequency (Optional):	50/60Hz
Battery parameter	
Storage type:	LEAD-ACID or Lithium
Battery input voltage:	40-58V
Max. charging Current:	95A
Max. Discharging Current:	95.8A
System	
Ingress Protection:	IP65
Dimensions(W*D*H):	550*200*520mm
Weight:	25Kg
Max. Efficiency:	95%



INVT Solar Technology (Shenzhen) Co.,Ltd.

invt	
Hybrid Solar Inverter	BD5KTL-RL1
PV input parameter	
Max PV Input:	7KWp
Mppt input Vol:	125~500V
Max PV Current:	14A*2
Isc PV:	17.5A*2
AC output parameter (On-grid)	
Max Apparent Output Power:	5KVA
Max AC current:	21.7A
Grid Voltage (Optional):	230V
Grid Frequency (Optional)	50/60Hz
Power Factor Range:	[-0.99,0.99]
AC output parameter(Buck-up)	
Max Apparent Output Power:	5KVA
Max Apparent Output current:	21.7A
AC Voltage (Optional):	230V
AC Frequency (Optional):	50/60Hz
Battery parameter	
Storage type:	LEAD-ACID or Lithium
Battery input voltage:	40-58V
Max. charging Current:	95A
Max. Discharging Current:	104.2A
System	
Ingress Protection:	IP65
Dimensions(W*D*H):	550*200*520mm
Weight:	25Kg
Max. Efficiency:	95%



INVT Solar Technology (Shenzhen) Co.,Ltd.

invt	
Hybrid Solar Inverter	BD6KTL-RL1
PV input parameter	
Max PV Input:	7KWp
Mppt input Vol:	125~500V
Max PV Current:	14A*2
Isc PV:	17.5A*2
AC output parameter (On-grid)	
Max Apparent Output Power:	6KVA
Max AC current:	26A
Grid Voltage (Optional):	230V
Grid Frequency (Optional)	50/60Hz
Power Factor Range:	[-0.99,0.99]
AC output parameter(Buck-up)	
Max Apparent Output Power:	6KVA
Max Apparent Output current:	26A
AC Voltage (Optional):	230V
AC Frequency (Optional):	50/60Hz
Battery parameter	
Storage type:	LEAD-ACID or Lithium
Battery input voltage:	40-58V
Max. charging Current:	95A
Max. Discharging Current:	110A
System	
Ingress Protection:	IP65
Dimensions(W*D*H):	550*200*520mm
Weight:	25Kg
Max. Efficiency:	95%

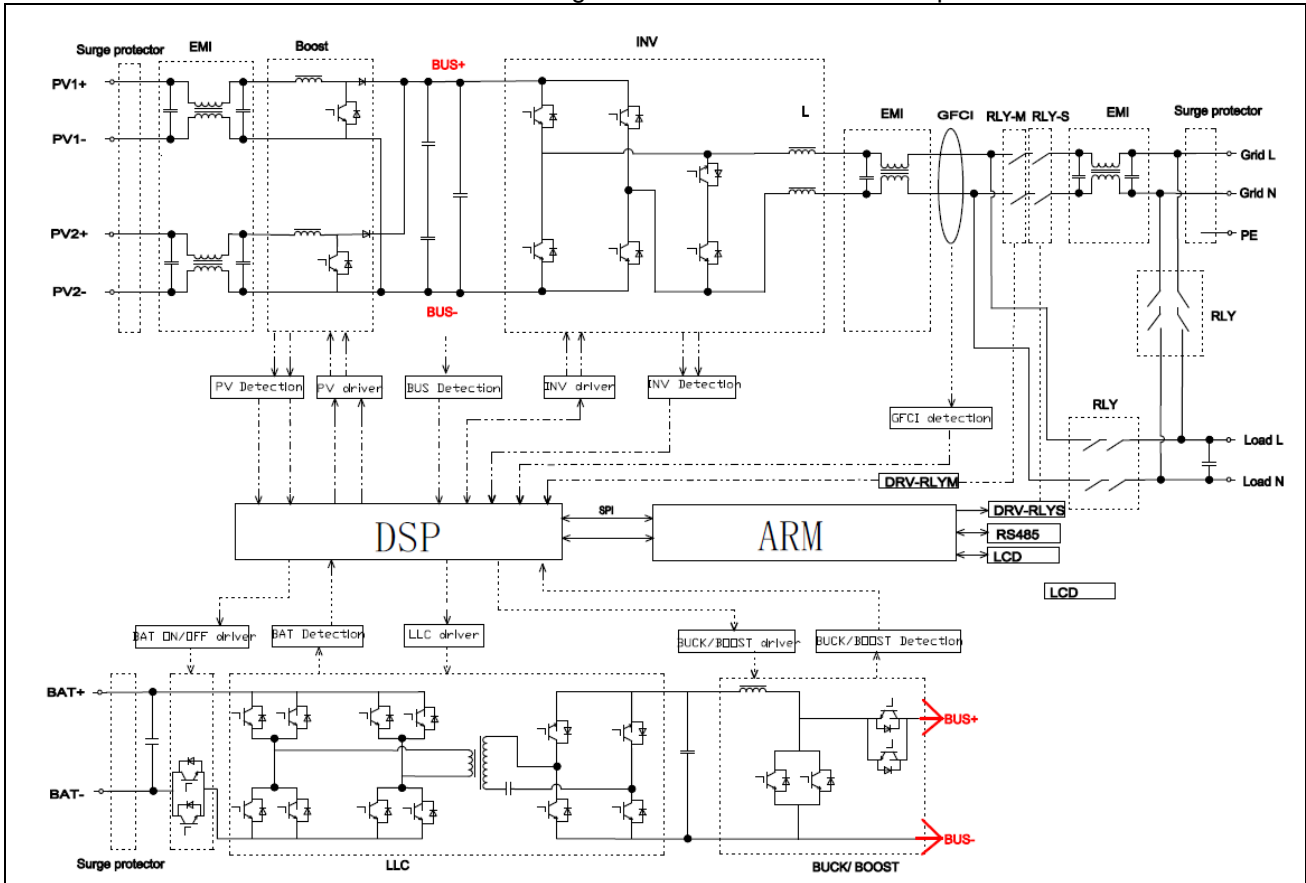


INVT Solar Technology (Shenzhen) Co.,Ltd.

Note:

1. The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.
2. Label is attached on the side surface of enclosure and visible after installation.

Test item particulars :	
Temperature range	-25°C ...60 °C
AC Overvoltage category..... :	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input checked="" type="checkbox"/> OVC III <input type="checkbox"/> OVC IV
DC Overvoltage category	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV
IP protection class	IP 65
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..... :	16 Sep 2022
Date (s) of performance of tests..... :	16 Sep 2022 to 21 Sep 2022
General remarks:	
<p>The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see Enclosure #)" refers to additional information appended to the report. "(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>This report is based on original report No. 220228209GZU-001, dated 12 July 2022 Revision 1: 25 August 2022, to change the applicant, nameplate and model names to apply for a new certificate.</p>	
General product information:	
<p>The unit is a single-phase energy storage system, it can convert the high PV voltage and Grid voltage to DC for charge battery, also converts PV voltage and battery voltage to AC output.</p> <p>The inverter should use together with an BSB7-100 Hight voltage battery system, which used as auxiliary device can boost and buck the DC voltage for battery charging and discharging.</p> <p>The hybrid inverter is providing EMI filtering at the PV, DC side, and AC side. It is transformerless between the PV circuit, DC input and AC circuit.</p> <p>The unit has two controllers. The master controller DSP monitor the invert statue; measure the PV voltage and current, bus voltage, AC voltage, current, GFCI and frequency, also communicate with the slave controller ARM</p> <p>The relays are designed to redundant structure that controlled by separately.</p> <p>The master controller and slave controller are used together to control relay open or close, if the single fault on one controller, the other controller can be capable to open the relay, so that still providing safety means.</p> <p>The topology diagram as following:</p>	



Model differences:

The models BD3KTL-RL1, BD3K6TL-RL1, BD4KTL-RL1, BD4K6TL-RL1, BD5KTL-RL1, BD6KTL-RL1 are completely identical, except that the model BD6KTL-RL1 has an extra bus capacity code C150 on the DR1 board.

The product was tested on:

The Software Version: V1.0
The Hardware Version: V2.1

Ratings:

Model	BD3KTL-RL1	BD3K6TL-RL1	BD4KTL-RL1	BD4K6TL-RL1	BD5KTL-RL1	BD6KTL-RL1
Max.PV voltage	550 d.c.V					
MPPT voltage range	125-500 d.c.V					
PV Isc	17.5 d.c.A					
Max. input current	14 d.c.A					
Max. DC voltage	550 d.c.V					
DC voltage range	125-550 d.c.V					
Max. DC current	14/14 d.c.A					
Type of battery	Lithium battery					
Capacity of battery	4.8kWh					
Nominal input / output power[W]	3000/	3680/	4000/	4600/	5000/	6000/

	3000	3680	4000	4600	5000	6000
Max. apparent power[VA]	3000	3680	4000	4600	5000	6000
Nominal output voltage	230 a.c.V					
Nominal input/output current[a.c.A]	13/13	16/16	17.4/17.4	20/20	21.7/21.7	26/26
Nominal Frequency	50/60Hz					
Power factor range	0.99 Leading – 0.99 lagging					
Safety level	Class I					
Ingress Protection	IP 65					
Operation Ambient Temperature	-25°C - +60°C					
Software version	V1.0					

Name and address of factory: Shenzhen INVT Electric Co., Ltd. Bao'an Branch Factory
 F1-F4, No.3 Building, Emerson Industrial Park, Fengtang Road, Tangwei Community, Fuhai, Bao'an District, Shenzhen City, Guangdong Province, 518103, P.R. China

Topology of the device, which this certificate is based on (Interface protection System (SPI) is integrated to inverter with output power up to 11.08KW)			
Disconnection Device	Interface Protection Device	Device for Static Conversion	Rotating Generator Device
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Tests performed (name of test and test clause):

Annex A: Requirements and test for Interface Protection System (SPI)

Interface protection System (SPI) can be integrated to inverter with output power up to 11.08KW.

A.4 Verifiche e prove sul SPI /test and inspection on SPI

Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Prove funzionali sull'SPI <i>/Functional test on SPI</i>	A.4.3 A.4.3.1 A.4.3.2 A.4.7 (limit conditions)	Condizioni di riferimento / Reference conditions (20 °C) – Tab.9	PASS	See note
		Caldo secco / Dry heat test CEI EN 60068-2-2 (Test B) - Tab.12	PASS	See note
		Umidità / Humidity test CEI EN 60068-2-78 (Test Cab) - Tab.12	PASS	See note
		Freddo / Cold test CEI EN 60068-2-1 (Test A) - Tab.12	PASS	See note

Note: Referred to original report No. 220228209GZU-001, dated 12 July 2022, issued by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch

A.4.3.3 Prescrizioni aggiuntive per le prove funzionali

/Additional requirements of the functional test

Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Insensibilità delle armoniche del relè di frequenza <i>Insensitivity to harmonics of the frequency relay</i>	A.4.3.3.1	CEI 0-21:2022	PASS	See note
Segnale di telescatto <i>Remote trip signal</i>	A.4.3.3.2	CEI 0-21:2022	PASS	See note
Segnale di telecomunicazione <i>Communication signal</i>	A.4.3.3.3	CEI 0-21:2022	PASS	See note
Verifica di insensibilità alla derivata di frequenza <i>Verification of insensitivity to the derivative of frequency</i>	A.4.3.4	CEI 0-21:2022	PASS	See note
Autotest	A.4.4	CEI 0-21:2022	PASS	See note
Single Fault tolerance	A.4.5	CEI 0-21:2022	PASS	See note

Note: Referred to original report No. 220228209GZU-001, dated 12 July 2022, issued by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch

A.4.6: Prove di compatibilità EMC				
Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Compatibilità elettromagnetica /Electromagnetic compatibility	A.4.6	CEI EN 60255-26 CEI EN 60263 (Severità classe 2 – Livello industriale) – Tab.11	PASS	See note

Note: Refer to EMC report no. ENS2203070100E00101R, issued by EMTEK (Shenzhen) Co., Ltd.
 And report No. SET2022-04643, issued by CCIC Southern Testing CO., Ltd.

A.4.7 Compatibilità Climatica / Climatic compatibility				
Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Compatibilità Climatica /Climatic compatibility Storage conditions	A.4.7 (limit conditions)	Caldo secco / Dry heat test CEI EN 60068-2-2 (Test B) - Tab.12	PASS	See note
		Umidità / Humidity test CEI EN 60068-2-78 (Test Cab) - Tab.12	PASS	See note
		Freddo / Cold test CEI EN 60068-2-1 (Test A) - Tab.12	PASS	See note
		Ciclo termico /changing temperature CEI EN 60068-2-14 - Tab.12	PASS	See note
Compatibilità Climatica /Climatic compatibility Inverter in working conditions	A.4.7 (limit conditions)	Caldo secco / Dry heat test CEI EN 60068-2-2 (Test B) - Tab.12	PASS	See note
		Umidità / Humidity test CEI EN 60068-2-78 (Test Cab) - Tab.12	PASS	See note
		Freddo / Cold test CEI EN 60068-2-1 (Test A) - Tab.12	PASS	See note
		Ciclo termico /changing temperature CEI EN 60068-2-14 - Tab.12	PASS	See note

Note: Referred to original report No. 220228209GZU-001, dated 12 July 2022, issued by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch

A.4.8 Prove di isolamento /Insulating test				
Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Tenuta ad impulso /Pulse test	A.4.8	CEI EN 60146-1-1	PASS	See note
Rigidità Dielettrica /Dielectric Strength		CEI EN 60255-5	PASS	See note

Resistenza di Isolamento /insulation resistance	CEI EN 60255-5	PASS	See note
Note: Referred to original report No. 220228209GZU-001, dated 12 July 2022, issued by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch			

A.4.9 Prove di sovraccaricabilità dei circuiti di misura / Measurement circuits Overload				
Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Prove di sovraccaricabilità dei circuiti di misura / Measurement circuits Overload	A.4.9	CEI 0-21:2022	PASS	See note
Note: Referred to original report No. 220228209GZU-001, dated 12 July 2022, issued by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch				

Annex B: Tests on inverters for indirectly connected systems

B.1 Prove sull'inverter / inverter tests

Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Armoniche di corrente /Harmonics measurement (full power, 66% and 33% of max. power) <input checked="" type="checkbox"/> CEI EN 61000-3-2 <input type="checkbox"/> CEI EN 61000-3-12	B.1 Tab. 14 Tab. 15 Refer to Bbis 3 Table 2Bbis Table 3Bbis	Condizioni di riferimento / Reference conditions (20 °C) – Tab.14	PASS	BD6KTL-RL1
		Caldo secco / Dry heat test CEI EN 60068-2-2 (Test B) - Tab.15	PASS	BD6KTL-RL1
		Freddo / Cold test CEI EN 60068-2-1 (Test A) - Tab.15	PASS	BD6KTL-RL1
Fluttuazioni di tensione /Flicker measurement (full power, 66% and 33% of max. power) <input checked="" type="checkbox"/> CEI EN 61000-3-3 <input type="checkbox"/> CEI EN 61000-3-11	B.1 Tab. 14 Tab. 15 Refer to Bbis 3 Table 2Bbis Table 3Bbis	Condizioni di riferimento / Reference conditions (20 °C) – Tab.14	PASS	BD6KTL-RL1
		Caldo secco / Dry heat test CEI EN 60068-2-2 (Test B) - Tab.15	PASS	BD6KTL-RL1
		Freddo / Cold test CEI EN 60068-2-1 (Test A) - Tab.15	PASS	BD6KTL-RL1

B.1.1 Condizioni di connessione, riconnessione ed erogazione graduale della potenza
Connection, re-connection conditions, and gradual increase of the power production

Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Verifica delle condizioni di connessione e riconnessione /Check of the connection and re-connection conditions	8.4.1.3 B.1.1.1 Refer to Bbis 5	CEI 0-21:2022	PASS	BD6KTL-RL1
Verifica della erogazione graduale della potenza attiva /Check of the gradual increase of the power production	8.4.1.3 B.1.1.2 Refer to Bbis 5	CEI 0-21:2022	PASS	BD6KTL-RL1

B.1.2 Erogazione della potenza reattiva /Reactive power production (or adsorbtion)				
Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Verifica dei requisiti costruttivi: capability erogazione della potenza reattiva <i>/ Check of the constructive requirements: reactive power production capability</i>	B.1.2.1 Refer to Bbis 6.1 Bbis 6.2	CEI 0-21:2022	PASS	BD6KTL-RL1
Erogazione di potenza reattiva secondo un livello assegnato <i>/ Reactive power production according to an assigned level</i> <i>Applicable for plant with power >11.08KW.</i>	B.1.2.3	CEI 0-21:2022	N/A	N/A
Tempo di risposta ad una variazione a gradino del livello assegnato <i>/Reaction time after a step variation of the assigned level.</i> <i>Applicable for plant with power >11.08KW.</i>	B.1.2.4	CEI 0-21:2022	N/A	N/A
Erogazione automatica di potenza reattiva secondo una curva caratteristica $\cos\phi = f(P)$ <i>/ Automatic reactive power production according to a characteristic curve $\cos(\phi)$</i>	B.1.2.5 <i>Annex E</i> E.2 Refer to Bbis 6.6 Bbis 6.7	CEI 0-21:2022	PASS	BD6KTL-RL1
Erogazione automatica di potenza reattiva secondo una curva caratteristica $Q=f(V)$ <i>/ Automatic reactive power production according to a characteristic curve $Q=f(V)$</i> <i>Applicable for plant with power >11.08KW.</i>	B.1.2.6 <i>Annex E</i> E.2.1	CEI 0-21:2022	N/A	N/A

B.1.3 Limitazione della potenza attiva <i>/ Active power limitation</i>				
Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Limitazione automatica della potenza attiva per valori di tensioni prossimi al 110% della tensione nominale / <i>Automatic limitation of active power for voltage values close to 110% of the rated voltage</i>	8.5.3.1 B.1.3.1 Refer to Bbis 7.1	CEI 0-21:2022	PASS	BD6KTL-RL1
Regolazione della potenza attiva in presenza di transitori di sovralfrequenza sulla rete di trasmissione / <i>Regulation of active power in the presence of over-frequency transients on the transmission network</i>	8.5.3.2 B.1.3.2 Refer to Bbis 7.2	CEI 0-21:2022	PASS	BD6KTL-RL1
Verifica del campo di funzionamento in tensione e frequenza / <i>Verification of the operating range in voltage and frequency</i>	8.4.4 B.1.3.3 Refer to Bbis 4	CEI 0-21:2022	PASS	BD6KTL-RL1
Limitazione della potenza attiva su comando esterno roveniente dal Distributore <i>/ Restriction of active power on the external command by the Distributor</i>	8.5.3.3 B.1.3.4 Annex F	CEI 0-21:2022	PASS	BD6KTL-RL1

B.1.4 Emissione di componente continua nella corrente di uscita <i>/ DC current injection on the output</i>				
Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Verifica della emissione di componente continua <i>/Check of DC current injection</i>	B.1.4.1 Refer to Bbis 8.1	Condizioni di riferimento / Reference conditions (20 °C)	PASS	BD6KTL-RL1
		Caldo secco / Dry heat test CEI EN 60068-2-2 (Test B)	PASS	BD6KTL-RL1
		Freddo / Cold test CEI EN 60068-2-1 (Test A)	PASS	BD6KTL-RL1
Verifica delle protezioni contro l'immissione di componente continua <i>/ Check of protections against the DC current injection.</i>	B.1.4.2 Refer to Bbis 8.2	Condizioni di riferimento / Reference conditions (20 °C)	PASS	BD6KTL-RL1
		Caldo secco / Dry heat test CEI EN 60068-2-2 (Test B)	PASS	BD6KTL-RL1
		Freddo / Cold test CEI EN 60068-2-1 (Test A)	PASS	BD6KTL-RL1

B.1.5 Verifica della insensibilità agli abbassamenti di tensione (LVFRT capability) <i>/ Check of the LVFRT capability</i>				
Test	Ref. CEI 0-21	Ref. standard	Result	Sample
LVFRT Capability <i>Applicable for plant with power >11.08KW.</i>	8.5.1 B.1.5	CEI 0-21:2022	N/A	N/A

B.1.6 Verifica della insensibilità alle richiuse automatiche in discordanza di fase <i>/ Check of the insensibility to the re-closures when phases are in discordanza</i>				
Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Verifica della insensibilità alle richiuse automatiche in discordanza di fase <i>/ Check of the insensibility to the re-closures when phases are in discordanza</i>	8.4.4.3 8.6.2.1 B.1.6 B.1.6.1 or B.1.6.2 (or B.1.6.3) Refer to Bbis 10	CEI 0-21:2022	PASS	BD6KTL-RL1

Allegato B: Prove di compatibilità EMC				
Test	Ref. CEI 0-21	Ref. standard	Result	Sample
Compatibilità elettromagnetica <i>/Electromagnetic compatibility</i>	Annex B	CEI EN 61000-6-3 CEI EN 61000-6-1	Pass	See note
Note: Refer to EMC report no. TWR2002024 001, issued by TUV Asia Pacific Ltd. Taiwan Branch				

Annex B bis Tests on storage systems
 Samples are selected for testing according to Bbis 2.2 Case B

Bbis.3 Elenco delle prove e condizioni di riferimento / List of tests and reference conditions

Test	Ref. CEI 0-21	Ref. standard	Result	Sample	Battery		
Armoniche di corrente /Harmonics measurement (full power, 66% and 33% of max. power) <input checked="" type="checkbox"/> CEI EN 61000-3-2 <input type="checkbox"/> CEI EN 61000-3-12	Bbis 3 Table 2Bbis Table 3Bbis	Condizioni di riferimento / Reference conditions (25 °C) – Tab.2Bbis	PASS	BD6KTL-RL1	VT48100E-P1		
				BD3KTL-RL1			
				Caldo secco / Dry heat test CEI EN 60068-2-2 (Test B) - Tab.3Bbis	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1			
				Freddo / Cold test CEI EN 60068-2-1 (Test A) - Tab.3Bbis	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1			
Fluttuazioni di tensione /Flicker measurement (full power, 66% and 33% of max. power) <input checked="" type="checkbox"/> CEI EN 61000-3-3 <input type="checkbox"/> CEI EN 61000-3-11	Bbis 3 Table 2Bbis Table 3Bbis	Condizioni di riferimento / Reference conditions (20 °C) –Tab.2Bbis	PASS	BD6KTL-RL1	VT48100E-P1		
						BD3KTL-RL1	
				Caldo secco / Dry heat test CEI EN 60068-2-2 (Test B) - Tab.3Bbis	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1			
				Freddo / Cold test CEI EN 60068-2-1 (Test A) - Tab.3Bbis	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1			

Bbis.4 Verifica del campo di funzionamento in tensione e frequenza
Verification of the operating range in voltage and frequency

Test	Ref. CEI 0-21	Ref. standard	Result	Sample	Battery
Verifica del campo di funzionamento in tensione e frequenza / Verification of the operating range in voltage and frequency	Bbis.4	CEI 0-21:2022	PASS	BD6KTL-RL1	VT48100E-P1

Bbis.5 Condizioni di connessione, riconnessione ed erogazione graduale della potenza <i>Conditions of connection, reconnection and gradual power supply</i>					
Test	Ref. CEI 0-21	Ref. standard	Result	Sample	Battery
Verifica delle condizioni di connessione e riconnessione / Checking the connection and reconnection conditions	Bbis.5.1	CEI 0-21:2022	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1	
Verifica della erogazione/assorbimento graduale della potenza attiva / Checking gradual supply of active power	Bbis.5.2	CEI 0-21:2022	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1	

Bbis.6 Scambio della potenza reattiva <i>Reactive power exchange</i>					
Test	Ref. CEI 0-21	Ref. standard	Result	Sample	Battery
Verifica dei requisiti costruttivi: capability della potenza reattiva / Checking construction standards: Reactive power capability	Bbis.6.1	CEI 0-21:2022	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1	
Modalità di esecuzione e registrazione della prova / Test performance and recording mode	Bbis.6.2	CEI 0-21:2022	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1	
Scambio di potenza reattiva secondo un livello assegnato / Reactive power exchange at a given level	Bbis.6.3	CEI 0-21:2022	N/A	N/A	N/A
Modalità di esecuzione della prova e registrazione dei risultati (ipotesi di regolazione tramite Q) / Procedures for performing tests and recording results (hypothesis of adjustment by Q)	Bbis.6.4	CEI 0-21:2022	N/A	N/A	N/A
Tempo di risposta ad una variazione a gradino del livello assegnato / Response time to an assigned step level change	Bbis.6.5	CEI 0-21:2022	N/A	N/A	N/A
Erogazione automatica di potenza reattiva secondo una curva caratteristica $\cos \varphi = f(P)$ / Automatic supply of reactive power according to a characteristic curve $\cos \varphi = f(P)$	Bbis.6.6 Bbis.6.7	CEI 0-21:2022	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1	
Scambio automatico di potenza reattiva secondo una curva caratteristica $Q=f(V)$ / Automatic exchange of reactive power according to a characteristic curve $Q=f(V)$	Bbis.6.8 Bbis.6.9	CEI 0-21:2022	PASS	N/A	N/A

Bbis.7 Regolazione della potenza attiva Active power regulation					
Test	Ref. CEI 0-21	Ref. standard	Result	Sample	Battery
Limitazione automatica della potenza attiva per valori di tensione prossimi al 110% della tensione nominale / Automatic limitation of active power for voltage values close to 110% of the rated voltage	8.5.3.1 Bbis.7.1	CEI 0-21:2022	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1	
Verifica della riduzione automatica della potenza attiva in presenza di transitori di sovrافrequenza sulla rete / Verification of the automatic reduction of the active power in presence of overfrequency transients on the network	8.5.3.4 8.5.3.5 Bbis.7.2 Bbis.7.2.1 Bbis.7.2.2	CEI 0-21:2022	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1	
Verifica dell'incremento automatico della potenza attiva in presenza di transitori di sottofrequenza sulla rete / Verification of the automatic increase of the active power in the presence of underfrequency transients on the network	8.5.3.4 8.5.3.5 Bbis.7.3 Bbis.7.3.1 Bbis.7.3.2	CEI 0-21:2022	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1	
Verifica della regolazione della potenza attiva su comando esterno proveniente dal Distributore / Verification of the regulation of the active power on an external command coming from the Distributor	8.5.3.3 Bbis.7.4	CEI 0-21:2022	PASS	BD6KTL-RL1	VT48100E-P1
				BD3KTL-RL1	

Bbis.8 Emissione di componente continua nella corrente di uscita <i>/ DC current injection on the output</i>					
Test	Ref. CEI 0-21	Ref. standard	Result	Sample	Battery
Verifica della emissione di componente continua <i>/Check of DC current injection</i>	Bbis 8.1	Condizioni di riferimento / Reference conditions (25 °C)	PASS	BD6KTL-RL1 BD3KTL-RL1	VT48100E-P1
		Caldo secco / Dry heat test CEI EN 60068-2-2 (Test B)	PASS		
		Freddo / Cold test CEI EN 60068-2-1 (Test A)	PASS		
Verifica delle protezioni contro l'immissione di componente continua <i>/ Check of protections against the DC current injection.</i>	Bbis 8.2	Condizioni di riferimento / Reference conditions (25 °C)	PASS	BD6KTL-RL1 BD3KTL-RL1	VT48100E-P1
		Caldo secco / Dry heat test CEI EN 60068-2-2 (Test B)	PASS		
		Freddo / Cold test CEI EN 60068-2-1 (Test A)	PASS		

Bbis.9 Verifica della insensibilità agli abbassamenti di tensione (LVFRT capability) <i>/ Check of the LVFRT capability</i>					
Test	Ref. CEI 0-21	Ref. standard	Result	Sample	Battery
LVFRT Capability <i>/ Applicable for plant with power >11.08KW.</i>	Bbis.9	CEI 0-21:2022	N/A	N/A	N/A

Bbis.10 Verifica della insensibilità alle richiuse automatiche in discordanza di fase <i>/ Check of the insensibility to the re-closures when phases are in discordance</i>					
Test	Ref. CEI 0-21	Ref. standard	Result	Sample	Battery
Verifica della insensibilità alle richiuse automatiche in discordanza di fase <i>/ Check of the insensibility to the re-closures when phases are in discordance</i>	Bbis.10	CEI 0-21:2022	PASS	BD6KTL-RL1	VT48100E-P1

A.3	Adjustment ranges for the interface protection system (SPI)	The SPI will be modifiable at the request of the Distributor, and programed by default with the tripping thresholds and trip times provided in table 8 Interface protection System (SPI) can be integrated to inverter with output power up to 11.08KW	P
A.3.1	Under voltage protection 27.S1	Threshold (0.2 ÷ 1; 0.05 Un steps)Un and trip time (0.05 ÷ 5; 0.05 s steps)	P
A.3.1	Under voltage protection 27.S2	Threshold (0.05 ÷ 1, 0.05 Un steps)Un and trip time (0.05 ÷ 5; 0.05 s steps) .	P
A.3.2	Over voltage protection 59.S1	Threshold (1 ÷ 1.2; 0.01 Un steps) Un and trip time (0.2 ÷ 10; 0.1 s steps) .	P
A.3.2	Over voltage protection 59.S2	Threshold (1.0 ÷ 1.3; 0.01 Un steps)Un and trip time (0.05 ÷ 1; 0.05 s steps)	P
A.3.3	Under frequency protection 81<S1	Threshold (47.0 ÷ 50.0; 0.1 Hz steps) Hz and trip time (0.05 ÷ 5; 0.05 s steps). It is insensitive to transients≤ 40ms . Operating with an input voltage between 0.2Vn and 1.15Vn. With V < 0.2Vn does not trip.	P
A.3.3	Under frequency protection 81<S2	Threshold (47.0 ÷ 50.0; 0.1 Hz steps) Hz and trip time (0.05 ÷ 5; 0.05 s steps). It is insensitive to transients≤ 40ms . Operating with an input voltage between 0.2Vn and 1.15Vn. With V < 0.2Vn does not trip.	P
A.3.4	Over frequency protection 81>S1	Threshold (50.0 ÷ 52.0; 0.1 Hz steps) Hz and trip time (0.05 ÷ 5; 0.05 s steps) . It is insensitive to transients≤ 40ms . Operating with an input voltage between 0.2Vn and 1.15Vn. With V < 0.2Vn does not trip.	P
A.3.4	Over frequency protection 81>S2	Threshold (50.0 ÷ 52.0; 0.1 Hz steps) Hz and trip time (0.05 ÷ 5; 0.05 s steps) s. It is insensitive to transients≤ 40ms . Operating with an input voltage between 0.2Vn and 1.15Vn. With V < 0.2Vn does not trip.	P

A.4	Checks and tests on the interface protection system SPI		P
A.4.3	Functional tests on the interface protection system (SPI)		P
A.4.3.3.1	Frequency relay insensitivity to harmonics		P
A.4.3.3.2	Remote trip signal		P
A.4.3.3.3	Communication Signal		P
A.4.3.4	Verification of insensitivity to the derivative of frequency		P
A.4.4	Autotest		P
A.4.5	Single fault tolerance		P
A.4.6	EMC compatibility tests		P
A.4.7	Climatic compatibility tests		P
A.4.8	Insulation tests		P
A.4.9	Tests for the overload capacity of measuring circuits		P
A.4.10	Compliance of equipment		P
A.4.11	Automatic mechanism to prevent current imbalance during production		N/A
B.1	Test on the inverter		P
B.1.1	Conditions of connection, reconnection and gradual power supply		P
B.1.1.1	Checking the connection and reconnection conditions		P
B.1.1.2	Checking gradual supply of active power		P
B.1.2	Reactive power exchange		P
B.1.2.2	Test performance and recording mode	Inverters in systems with total capacity up to 11.08 kW	P
B.1.2.2.1	Inverters in systems with total capacity up to 11.08 kW		P
B.1.2.2.2	Inverters in systems with total capacity greater than 11.08 kW		N/A
B.1.2.3	Reactive power exchange at a given level		N/A
B.1.2.4	Response time to an assigned step level change		N/A
B.1.2.5	Automatic supply of reactive power according to a characteristic curve $\cos\phi=f(P)$		P
B.1.2.6	Automatic exchange of reactive power according to a characteristic curve $Q=f(V)$		N/A
B.1.3	Limitation of active power		P
B.1.3.1	Automatic limitation of active power for voltage values close to 110% of the rated voltage		P
B.1.3.2	Regulation of active power in the presence of over-frequency transients on the transmission network		P

B1.3.3	Verification of the operating range in voltage and frequency		P
B.1.3.4	Limitation of active power to external command from the Distributor		P
B.1.4	Output of DC component in the output current		P
B.1.4.1	Checking the DC component output		P
B.1.4.2	Checking the protection against DC input		P
B.1.5	Checking insensitivity to voltage dips (LVRT capability)		N/A
B.1.6	Checking the insensitivity to automatic reclosing during phase accordance		P
B.1.6.1	Tests on the simulated network		P
B.1.6.2	Tests on the distribution network using a coupling transformer		N/A
B.1.6.3	Tests on the distribution network, simulation of frequency drift		N/A
Bbis.2.2	Scalability and modularity	Case B	P
Bbis.3	List of tests and reference conditions		P
Bbis.4	Verification of the operating range in voltage and frequency		P
Bbis.5	Conditions of connection, reconnection and gradual power supply		P
Bbis.5.1	Checking the connection and reconnection conditions		P
Bbis.5.2	Checking gradual supply of active power		P
Bbis.6	Reactive power exchange		P
Bbis.6.1	Checking construction standards: Reactive power capability		P
Bbis.6.2	Test performance and recording mode		P
Bbis.6.3	Reactive power exchange at a given level	Storage system in systems with total capacity up to 11.08 kW	N/A
Bbis.6.4	Procedures for performing tests and recording results (hypothesis of adjustment by Q)		N/A
Bbis.6.5	Response time to an assigned step level change		N/A
Bbis.6.6	Automatic supply of reactive power according to a characteristic curve $\cos \phi = f(P)$		P
Bbis.6.7	Checking compliance with the rules for implementing the standard supply curve $\cos \phi = f(P)$		P

Bbis. 6.8	Automatic exchange of reactive power according to a characteristic curve $Q=f(V)$		N/A
Bbis. 6.9	Checking compliance with the rules for implementing the characteristic curve $Q=f(V)$		N/A
Bbis.7	Active power regulation		P
Bbis. 7.1	Automatic limitation of active power for voltage values close to 110% of the rated voltage		P
Bbis. 7.2	Verification of the automatic reduction of the active power in presence of overfrequency transients on the network		P
Bbis. 7.3	Verification of the automatic increase of the active power in the presence of underfrequency transients on the network		P
Bbis. 7.4	Verification of the regulation of the active power on an external command coming from the Distributor		P
Bbis. 8.1	Output of the DC component in the output current		P
Bbis. 8.2	Checking the protection against DC input		P
Bbis.9	Checking insensitivity to voltage dips (LVFRT capability)		N/A
Bbis. 10	Checking the insensitivity to automatic reclosing during phase discordance		P
Bbis. 10.1	Test on a simulated network		P
Bbis. 10.2	Tests on the distribution network using a coupling transformer:		N/A
Bbis. 10.3	Tests on the distribution network, simulation of frequency drift		N/A

Appended Table - Testing Result

Bbis.3	TABLE: Current harmonics emission test			P
Current harmonics emission test for class A limit (According to CEI EN 61000-3-2/61000-3-12)				
Test was performed under the condition of table 2Bbis and table 3Bbis				
Tabella 2Bbis – Condizioni di riferimento				
Grandezza di influenza		Valore di riferimento		
Temperatura ambiente		25 °C ± 5 °C		
Pressione atmosferica		96 ± 10 kPa		
Umidità relative		65% RH ± 10% RH		
Posizione apparecchiatura		Secondo quanto dichiarato del Costruttore		
Frequenza		50 Hz (nel campo 47,5 Hz – 51,5 Hz, ove applicabile)		
Forma d'onda della tensione di riferimento		Conforme alla CEI EN 50160		
Tabella 3Bbis – Condizioni di riferimento				
Grandezza di influenza		Valore di riferimento		
Temperatura ambiente		-10 °C e +55 °C con ± 2 °C		
Pressione atmosferica		96 ± 10 kPa		
Umidità relative		65% RH ± 5% RH (per temperature maggiori di 0°C)		
Posizione apparecchiatura		Secondo quanto dichiarato del Costruttore		
Frequenza		50 Hz		
Forma d'onda della tensione di riferimento		Conforme alla CEI EN 50160		
Model: BD3KTL-RL1 tested with battery VT48100E-P1, discharging				
Harmonics measurement under ambient condition 25 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
Nr./Order	Ih(A)	Ih(A)	Ih(A)	
2	0.0359	0.0458	0.0856	1.080
3	0.1415	0.2525	0.3927	2.300
4	0.0212	0.0221	0.0326	0.430
5	0.0422	0.0409	0.0816	1.140
6	0.0182	0.0071	0.0173	0.300
7	0.0427	0.0264	0.0496	0.770
8	0.0166	0.0057	0.0128	0.230
9	0.0057	0.0197	0.0441	0.400
10	0.0052	0.0053	0.0109	0.184
11	0.0055	0.0182	0.0429	0.330
12	0.0049	0.0052	0.0135	0.153
13	0.0050	0.0174	0.0506	0.210
14	0.0046	0.0056	0.0176	0.131
15	0.0049	0.0177	0.0580	0.150
16	0.0043	0.0071	0.0138	0.115
17	0.0047	0.0508	0.0751	0.132
18	0.0413	0.0034	0.0047	0.102
19	0.0240	0.0222	0.0409	0.118

20	0.0275	0.0022	0.0040	0.092
21	0.0281	0.0182	0.0325	0.107
22	0.0187	0.0020	0.0034	0.084
23	0.0219	0.0155	0.0255	0.098
24	0.0142	0.0018	0.0033	0.077
25	0.0189	0.0127	0.0210	0.090
26	0.0147	0.0019	0.0035	0.071
27	0.0247	0.0104	0.0176	0.083
28	0.0131	0.0015	0.0026	0.066
29	0.0232	0.0089	0.0150	0.078
30	0.0104	0.0013	0.0023	0.061
31	0.0116	0.0078	0.0129	0.073
32	0.0085	0.0012	0.0022	0.058
33	0.0087	0.0069	0.0113	0.068
34	0.0072	0.0012	0.0021	0.054
35	0.0075	0.0061	0.0100	0.064
36	0.0064	0.0012	0.0020	0.051
37	0.0068	0.0055	0.0091	0.061
38	0.0059	0.0010	0.0020	0.048
39	0.0062	0.0050	0.0084	0.058
40	0.0054	0.0010	0.0019	0.046

Model: BD3KTL-RL1 tested with battery VT48100E-P1, charging				
Harmonics measurement under ambient condition 25 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
Nr/Order	Ih(A)	Ih(A)	Ih(A)	
2	0.0269	0.0352	0.0625	1.080
3	0.1149	0.2334	0.3460	2.300
4	0.0171	0.0112	0.0225	0.430
5	0.0195	0.0159	0.0266	1.140
6	0.0173	0.0058	0.0101	0.300
7	0.0341	0.0109	0.0223	0.770
8	0.0252	0.0048	0.0075	0.230
9	0.0068	0.0100	0.0244	0.400
10	0.0053	0.0042	0.0098	0.184
11	0.0056	0.0121	0.0445	0.330
12	0.0053	0.0049	0.0168	0.153
13	0.0063	0.0150	0.0703	0.210
14	0.0049	0.0061	0.0255	0.131
15	0.0050	0.0168	0.0830	0.150
16	0.0044	0.0058	0.0175	0.115
17	0.0723	0.0461	0.0740	0.132
18	0.0439	0.0021	0.0040	0.102
19	0.0264	0.0181	0.0377	0.118
20	0.0283	0.0019	0.0032	0.092
21	0.0305	0.0155	0.0293	0.107
22	0.0185	0.0017	0.0028	0.084
23	0.0199	0.0138	0.0242	0.098
24	0.0153	0.0017	0.0027	0.077
25	0.0219	0.0113	0.0199	0.090
26	0.0145	0.0018	0.0030	0.071
27	0.0252	0.0093	0.0170	0.083
28	0.0132	0.0012	0.0021	0.066
29	0.0232	0.0083	0.0152	0.078
30	0.0112	0.0011	0.0020	0.061
31	0.0126	0.0078	0.0136	0.073
32	0.0090	0.0011	0.0018	0.058
33	0.0093	0.0071	0.0124	0.068
34	0.0074	0.0010	0.0018	0.054
35	0.0085	0.0064	0.0116	0.064
36	0.0067	0.0009	0.0018	0.051
37	0.0069	0.0060	0.0108	0.061
38	0.0061	0.0010	0.0016	0.048
39	0.0073	0.0056	0.0101	0.058
40	0.0056	0.0009	0.0015	0.046

BD3KTL-RL1 tested with battery VT48100E-P1, discharging				
Harmonics measurement under ambient condition 55 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
Nr/Order	Ih(A)	Ih(A)	Ih(A)	
2	0.0389	0.0478	0.0887	1.080
3	0.1419	0.2517	0.3929	2.300
4	0.0285	0.0180	0.0304	0.430
5	0.0487	0.0399	0.0806	1.140
6	0.0280	0.0092	0.0126	0.300
7	0.0326	0.0268	0.0503	0.770
8	0.0504	0.0054	0.0091	0.230
9	0.0077	0.0201	0.0409	0.400
10	0.0075	0.0044	0.0099	0.184
11	0.0071	0.0176	0.0443	0.330
12	0.0071	0.0054	0.0135	0.153
13	0.0068	0.0181	0.0495	0.210
14	0.0444	0.0064	0.0179	0.131
15	0.0266	0.0186	0.0606	0.150
16	0.1301	0.0067	0.0138	0.115
17	0.0384	0.0509	0.0753	0.132
18	0.0612	0.0027	0.0036	0.102
19	0.0453	0.0220	0.0408	0.118
20	0.0380	0.0020	0.0034	0.092
21	0.0350	0.0182	0.0323	0.107
22	0.0266	0.0018	0.0031	0.084
23	0.0247	0.0154	0.0254	0.098
24	0.0227	0.0017	0.0029	0.077
25	0.0274	0.0127	0.0208	0.090
26	0.0178	0.0018	0.0032	0.071
27	0.0249	0.0104	0.0175	0.083
28	0.0165	0.0013	0.0023	0.066
29	0.0226	0.0089	0.0149	0.078
30	0.0142	0.0013	0.0021	0.061
31	0.0131	0.0078	0.0128	0.073
32	0.0127	0.0011	0.0021	0.058
33	0.0125	0.0068	0.0113	0.068
34	0.0109	0.0011	0.0019	0.054
35	0.0107	0.0061	0.0100	0.064
36	0.0100	0.0011	0.0017	0.051
37	0.0099	0.0055	0.0091	0.061
38	0.0092	0.0010	0.0017	0.048
39	0.0090	0.0050	0.0083	0.058
40	0.0086	0.0009	0.0017	0.046

BD3KTL-RL1 tested with battery VT48100E-P1, charging				
Harmonics measurement under ambient condition 55 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
Nr/Order	Ih(A)	Ih(A)	Ih(A)	
2	0.0307	0.0340	0.0593	1.080
3	0.1144	0.2330	0.3460	2.300
4	0.0303	0.0129	0.0246	0.430
5	0.0430	0.0167	0.0255	1.140
6	0.0299	0.0056	0.0130	0.300
7	0.0460	0.0112	0.0225	0.770
8	0.0511	0.0040	0.0102	0.230
9	0.0092	0.0096	0.0236	0.400
10	0.0084	0.0037	0.0099	0.184
11	0.0083	0.0118	0.0377	0.330
12	0.0078	0.0045	0.0156	0.153
13	0.0081	0.0150	0.0594	0.210
14	0.0075	0.0061	0.0205	0.131
15	0.0076	0.0166	0.0687	0.150
16	0.0069	0.0057	0.0148	0.115
17	0.0340	0.0459	0.0730	0.132
18	0.0618	0.0021	0.0046	0.102
19	0.0453	0.0181	0.0373	0.118
20	0.0370	0.0017	0.0038	0.092
21	0.0321	0.0154	0.0289	0.107
22	0.0276	0.0015	0.0033	0.084
23	0.0269	0.0138	0.0241	0.098
24	0.0221	0.0015	0.0032	0.077
25	0.0266	0.0113	0.0198	0.090
26	0.0186	0.0017	0.0032	0.071
27	0.0257	0.0092	0.0170	0.083
28	0.0164	0.0011	0.0024	0.066
29	0.0225	0.0083	0.0152	0.078
30	0.0151	0.0010	0.0023	0.061
31	0.0136	0.0078	0.0136	0.073
32	0.0131	0.0010	0.0021	0.058
33	0.0133	0.0070	0.0123	0.068
34	0.0113	0.0009	0.0021	0.054
35	0.0112	0.0064	0.0115	0.064
36	0.0101	0.0009	0.0020	0.051
37	0.0110	0.0060	0.0108	0.061
38	0.0095	0.0009	0.0020	0.048
39	0.0094	0.0056	0.0100	0.058
40	0.0087	0.0009	0.0019	0.046

Model: BD3KTL-RL1 tested with battery VT48100E-P1, discharging				
Harmonics measurement under ambient condition -10 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
Nr./Order	Ih(A)	Ih(A)	Ih(A)	
2	0.0410	0.0491	0.0885	1.080
3	0.1440	0.2524	0.3925	2.300
4	0.0308	0.0165	0.0319	0.430
5	0.0503	0.0393	0.0806	1.140
6	0.0360	0.0082	0.0121	0.300
7	0.0686	0.0262	0.0499	0.770
8	0.0480	0.0061	0.0090	0.230
9	0.0088	0.0196	0.0418	0.400
10	0.0084	0.0052	0.0103	0.184
11	0.0084	0.0170	0.0408	0.330
12	0.0082	0.0060	0.0134	0.153
13	0.0078	0.0169	0.0531	0.210
14	0.0077	0.0067	0.0185	0.131
15	0.0073	0.0188	0.0569	0.150
16	0.0073	0.0069	0.0131	0.115
17	0.0516	0.0507	0.0752	0.132
18	0.0650	0.0024	0.0036	0.102
19	0.0583	0.0220	0.0408	0.118
20	0.0361	0.0018	0.0032	0.092
21	0.0291	0.0181	0.0324	0.107
22	0.0294	0.0017	0.0027	0.084
23	0.0299	0.0154	0.0255	0.098
24	0.0225	0.0017	0.0027	0.077
25	0.0263	0.0126	0.0208	0.090
26	0.0194	0.0018	0.0029	0.071
27	0.0254	0.0103	0.0174	0.083
28	0.0171	0.0013	0.0021	0.066
29	0.0217	0.0089	0.0148	0.078
30	0.0158	0.0012	0.0019	0.061
31	0.0148	0.0077	0.0128	0.073
32	0.0136	0.0011	0.0018	0.058
33	0.0128	0.0068	0.0113	0.068
34	0.0119	0.0010	0.0018	0.054
35	0.0118	0.0061	0.0100	0.064
36	0.0107	0.0010	0.0016	0.051
37	0.0104	0.0055	0.0089	0.061
38	0.0100	0.0010	0.0016	0.048
39	0.0097	0.0050	0.0082	0.058
40	0.0094	0.0009	0.0016	0.046

Model: BD3KTL-RL1 tested with battery VT48100E-P1, charging				
Harmonics measurement under ambient condition -10 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
Nr./Order	Ih(A)	Ih(A)	Ih(A)	
2	0.0348	0.0312	0.0505	1.080
3	0.1166	0.2327	0.3458	2.300
4	0.0268	0.0142	0.0261	0.430
5	0.0276	0.0157	0.0253	1.140
6	0.0368	0.0082	0.0179	0.300
7	0.0762	0.0113	0.0244	0.770
8	0.0437	0.0068	0.0099	0.230
9	0.0089	0.0107	0.0246	0.400
10	0.0085	0.0054	0.0105	0.184
11	0.0087	0.0130	0.0407	0.330
12	0.0079	0.0053	0.0176	0.153
13	0.0079	0.0151	0.0671	0.210
14	0.0074	0.0062	0.0198	0.131
15	0.0078	0.0169	0.0730	0.150
16	0.0069	0.0061	0.0169	0.115
17	0.0586	0.0456	0.0723	0.132
18	0.0613	0.0028	0.0067	0.102
19	0.0558	0.0181	0.0373	0.118
20	0.0354	0.0021	0.0049	0.092
21	0.0317	0.0154	0.0289	0.107
22	0.0272	0.0020	0.0040	0.084
23	0.0264	0.0138	0.0243	0.098
24	0.0218	0.0019	0.0035	0.077
25	0.0278	0.0113	0.0198	0.090
26	0.0182	0.0020	0.0037	0.071
27	0.0251	0.0092	0.0170	0.083
28	0.0165	0.0015	0.0028	0.066
29	0.0228	0.0083	0.0152	0.078
30	0.0153	0.0013	0.0027	0.061
31	0.0152	0.0078	0.0136	0.073
32	0.0129	0.0013	0.0023	0.058
33	0.0127	0.0070	0.0123	0.068
34	0.0112	0.0013	0.0022	0.054
35	0.0116	0.0064	0.0116	0.064
36	0.0103	0.0012	0.0022	0.051
37	0.0104	0.0060	0.0107	0.061
38	0.0093	0.0012	0.0021	0.048
39	0.0097	0.0057	0.0100	0.058
40	0.0089	0.0012	0.0020	0.046

Model: BD6KTL-RL1 tested with PV mode				
Harmonics measurement under ambient condition 25 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
2	0.0556	0.1021	0.1048	8.00
3	0.1515	0.1490	0.2461	21.60
4	0.0238	0.0325	0.0436	4.00
5	0.0677	0.0888	0.0565	10.70
6	0.0101	0.0136	0.0166	2.67
7	0.0479	0.0316	0.0386	7.20
8	0.0079	0.0094	0.0103	2.00
9	0.0189	0.0369	0.0405	3.80
10	0.0053	0.0051	0.0092	1.60
11	0.0213	0.0223	0.0219	3.10
12	0.0051	0.0046	0.0082	1.33
13	0.0214	0.0100	0.0164	2.00
PWHD	2.2040	1.5150	1.0130	23
THD	2.2166	1.2734	1.1369	23

Model: BD6KTL-RL1 tested with PV mode				
Harmonics measurement under ambient condition 55 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
2	0.0501	0.1013	0.1055	8.00
3	0.1503	0.1589	0.2309	21.60
4	0.0256	0.0308	0.0431	4.00
5	0.0698	0.0775	0.0583	10.70
6	0.0108	0.0116	0.0159	2.67
7	0.0464	0.0390	0.0198	7.20
8	0.0075	0.0087	0.0077	2.00
9	0.0213	0.0315	0.0595	3.80
10	0.0047	0.0048	0.0085	1.60
11	0.0182	0.0235	0.0239	3.10
12	0.0038	0.0048	0.0061	1.33
13	0.0157	0.0116	0.0209	2.00
PWHD	2.5570	1.4960	1.0350	23
THD	2.1692	1.2909	1.0945	23

Model: BD6KTL-RL1 tested with PV mode				
Harmonics measurement under ambient condition -10 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
2	0.0542	0.1030	0.1052	8.00
3	0.1499	0.1574	0.2320	21.60
4	0.0245	0.0335	0.0419	4.00
5	0.0685	0.0802	0.0581	10.70
6	0.0115	0.0129	0.0190	2.67
7	0.0471	0.0376	0.0243	7.20
8	0.0086	0.0096	0.0121	2.00
9	0.0207	0.0329	0.0559	3.80
10	0.0054	0.0058	0.0117	1.60
11	0.0210	0.0245	0.0267	3.10
12	0.0057	0.0056	0.0094	1.33
13	0.0222	0.0142	0.0213	2.00
PWHD	2.1790	1.4370	0.9890	23
THD	2.2101	1.3000	1.1027	23

Model: BD6KTL-RL1 tested with battery VT48100E-P1, charging				
Harmonics measurement under ambient condition 25 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
2	0.4926	0.4771	0.3456	8.00
3	2.5114	2.2865	2.3267	21.60
4	0.2805	0.2523	0.1435	4.00
5	0.2999	0.2193	0.1899	10.70
6	0.1513	0.0785	0.0959	2.67
7	0.2519	0.1444	0.1034	7.20
8	0.1143	0.0581	0.0429	2.00
9	0.3095	0.1368	0.0744	3.80
10	0.1140	0.0551	0.0324	1.60
11	0.4262	0.1252	0.0677	3.10
12	0.1115	0.0429	0.0283	1.33
13	0.5372	0.1279	0.0609	2.00
PWHD	4.0644	1.0442	0.8368	23
THD	2.8845	2.3918	2.3813	23

Model: BD6KTL-RL1 tested with battery VT48100E-P1, discharging				
Harmonics measurement under ambient condition 25 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
2	0.0735	0.6838	0.4748	8.00
3	0.2230	2.6321	1.7939	21.60
4	0.0285	0.2423	0.1990	4.00
5	0.0754	0.5429	0.1820	10.70
6	0.0187	0.0907	0.1214	2.67
7	0.0521	0.3297	0.2883	7.20
8	0.0119	0.0621	0.0652	2.00
9	0.0884	0.2265	0.1188	3.80
10	0.0379	0.0572	0.0550	1.60
11	0.1863	0.1855	0.1356	3.10
12	0.0682	0.0578	0.0450	1.33
13	0.4764	0.1747	0.0889	2.00
PWHD	4.4938	1.1969	1.0069	23
THD	3.4194	2.8435	1.9294	23

Model: BD6KTL-RL1 tested with battery VT48100E-P1, charging				
Harmonics measurement under ambient condition 55 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
2	0.0601	0.4804	0.3480	8.00
3	0.1694	2.3025	2.3430	21.60
4	0.0279	0.2541	0.1445	4.00
5	0.0433	0.2208	0.1912	10.70
6	0.0221	0.0790	0.0966	2.67
7	0.0459	0.1454	0.1041	7.20
8	0.0300	0.0585	0.0432	2.00
9	0.1050	0.1378	0.0749	3.80
10	0.0426	0.0555	0.0326	1.60
11	0.2038	0.1261	0.0682	3.10
12	0.0806	0.0432	0.0285	1.33
13	0.5088	0.1288	0.0613	2.00
PWHD	4.2429	1.0331	0.8634	23
THD	2.9081	2.3998	2.3901	23

Model: BD6KTL-RL1 tested with battery VT48100E-P1, discharging				
Harmonics measurement under ambient condition 55 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
2	0.0712	0.5400	0.6033	8.00
3	0.2233	1.7567	2.6252	21.60
4	0.0270	0.1628	0.2902	4.00
5	0.0760	0.1932	0.5406	10.70
6	0.0192	0.1001	0.0924	2.67
7	0.0507	0.2764	0.3405	7.20
8	0.0174	0.0489	0.0738	2.00
9	0.1005	0.1143	0.2207	3.80
10	0.0335	0.0466	0.0535	1.60
11	0.1780	0.1374	0.1865	3.10
12	0.0920	0.0385	0.0466	1.33
13	0.5280	0.0788	0.1680	2.00
PWHD	4.5431	1.1764	0.9821	23
THD	3.4414	2.8225	1.9048	23

Model: BD6KTL-RL1 tested with battery VT48100E-P1, charging				
Harmonics measurement under ambient condition -10 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
2	0.0695	0.4055	0.4688	8.00
3	0.1698	1.6222	2.4907	21.60
4	0.0205	0.0283	0.1557	4.00
5	0.0471	0.0587	0.4061	10.70
6	0.0143	0.4055	0.4688	2.67
7	0.0554	0.1008	0.0930	7.20
8	0.0093	0.2783	0.3429	2.00
9	0.0849	0.0492	0.0743	3.80
10	0.0322	0.1151	0.2222	1.60
11	0.1993	0.0469	0.0539	3.10
12	0.0599	0.1384	0.1878	1.33
13	0.4622	0.0388	0.0469	2.00
PWHD	4.0674	1.0014	0.8736	23
THD	2.8893	2.4041	2.3812	23

Model: BD6KTL-RL1 tested with battery VT48100E-P1, discharging				
Harmonics measurement under ambient condition -10 °C				
Pbin(%)	33%	66%	100%	LIMIT (%)
2	0.0772	0.6875	0.4980	8.00
3	0.2249	3.2949	3.3528	21.60
4	0.0214	0.3636	0.2068	4.00
5	0.0747	0.3160	0.2736	10.70
6	0.0132	0.1131	0.1382	2.67
7	0.0501	0.2081	0.1490	7.20
8	0.0141	0.0837	0.0618	2.00
9	0.1030	0.1971	0.1072	3.80
10	0.0258	0.0794	0.0467	1.60
11	0.1780	0.1804	0.0976	3.10
12	0.0739	0.0618	0.0408	1.33
13	0.4907	0.1843	0.0878	2.00
PWHD	4.4298	1.2141	0.9646	23
THD	3.4265	2.8194	1.9196	23

Bbis.3	TABLE: Flicker	P
---------------	-----------------------	----------

Flicker measurement

CEI EN 61000-3-3

Test was performed under the condition of table 2Bbis and table 3Bbis
Tabella 2Bbis – Condizioni di riferimento

Grandezza di influenza	Valore di riferimento
Temperatura ambiente	25 °C ± 5 °C
Pressione atmosferica	96 ± 10 kPa
Umidità relative	65% RH ± 10% RH
Posizione apparecchiatura	Secondo quanto dichiarato del Costruttore
Frequenza	50 Hz (nel campo 47,5 Hz – 51,5 Hz, ove applicabile)
Forma d'onda della tensione di riferimento	Conforme alla CEI EN 50160

Tabella 3Bbis – Condizioni di riferimento

Grandezza di influenza	Valore di riferimento
Temperatura ambiente	-10 °C e +55 °C con ± 2 °C
Pressione atmosferica	96 ± 10 kPa
Umidità relative	65% RH ± 5% RH (per temperature maggiori di 0°C)
Posizione apparecchiatura	Secondo quanto dichiarato del Costruttore
Frequenza	50 Hz
Forma d'onda della tensione di riferimento	Conforme alla CEI EN 50160

Model: BD3KTL-RL1 tested with battery VT48100E-P1, charging
Flicker measurement under ambient condition 25°C

P _{bin} (%)	Limit	33%	66%	100%
PST	≤ 1	0.071	0.072	0.069
PLT	≤ 0.65	0.068	0.067	0.068
dc	≤ 3.30%	0.00	0.00	0.00
dmax	4%	0.00	0.00	0.00

Model: BD3KTL-RL1 tested with battery VT48100E-P1, discharging
Flicker measurement under ambient condition 25°C

P _{bin} (%)	Limit	33%	66%	100%
PST	≤ 1	0.068	0.068	0.068
PLT	≤ 0.65	0.067	0.067	0.067
dc	≤ 3.30%	0.00	0.00	0.00
dmax	4%	0.00	0.00	0.00

Charging

Flicker measurement under ambient condition 25°C

33%

Flicker Mode		Range Over		SCL		Line Filter		PA_00000.tif	
Flicker		U1 U2 U3 U4 U5 U6 U7	U11 U12 U13 U14 U15 U16 U17	<input type="checkbox"/>		<input type="checkbox"/>			
				AVG		Freq Filter			
Count		12/12		Complete					
Interval		00:00s/10:00s							
Element	1			Element1	Judgement	Pass			
Volt Range	600 V/50Hz			Total	Judgement	Pass			
Un (U1)	230.162V			(Element1)					
Freq (U1)	50.000Hz								
Dmin	0.10%								
	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit				
Limit	3.30	4.00	500	1.00	0.65				
			3.30%		N:12				
No. 1	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
2	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
3	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
4	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
5	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
6	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
7	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
8	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
9	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
10	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
11	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
12	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
Result	Pass	Pass	Pass	Pass	Pass	0.067	Pass		

66%

Flicker Mode		Range Over		SCL		Line Filter		PA_00000.tif	
Flicker		U1 U2 U3 U4 U5 U6 U7	U11 U12 U13 U14 U15 U16 U17	<input type="checkbox"/>		<input type="checkbox"/>			
				AVG		Freq Filter			
Count		12/12		Complete					
Interval		00:00s/10:00s							
Element	1			Element1	Judgement	Pass			
Volt Range	600 V/50Hz			Total	Judgement	Pass			
Un (U1)	230.160V			(Element1)					
Freq (U1)	50.000Hz								
Dmin	0.10%								
	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit				
Limit	3.30	4.00	500	1.00	0.65				
			3.30%		N:12				
No. 1	0.000	Pass	0.000	Pass	0.0	Pass	0.065	Pass	
2	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
3	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
4	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
5	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass	
6	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass	
7	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass	
8	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
9	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
10	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
11	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
12	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
Result	Pass	Pass	Pass	Pass	Pass	0.067	Pass		

100%

Flicker Mode		Range Over		SCL		Line Filter		PA_00000.tif	
Flicker		U1 U2 U3 U4 U5 U6 U7	U11 U12 U13 U14 U15 U16 U17	<input type="checkbox"/>		<input type="checkbox"/>			
				AVG		Freq Filter			
Count		12/12		Complete					
Interval		00:00s/10:00s							
Element	1			Element1	Judgement	Pass			
Volt Range	600 V/50Hz			Total	Judgement	Pass			
Un (U1)	230.163V			(Element1)					
Freq (U1)	50.000Hz								
Dmin	0.10%								
	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit				
Limit	3.30	4.00	500	1.00	0.65				
			3.30%		N:12				
No. 1	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
2	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
3	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass	
4	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass	
5	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
6	0.000	Pass	0.000	Pass	0.0	Pass	0.069	Pass	
7	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
8	0.000	Pass	0.000	Pass	0.0	Pass	0.069	Pass	
9	0.000	Pass	0.000	Pass	0.0	Pass	0.069	Pass	
10	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass	
11	0.000	Pass	0.000	Pass	0.0	Pass	0.069	Pass	
12	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass	
Result	Pass	Pass	Pass	Pass	Pass	0.068	Pass		

Discharging

Flicker measurement under ambient condition 25°C

33%

Flicker Mode		Range Over						SCL		Line Filter	PA_00000.tif		
Flicker		U1	U2	U3	U4	U5	U6	U7	AVG		Freq Filter		
		11	12	13	14	15	16	17					
Count		12/12										Complete	
Interval		00:00s/10:00s											
Element	1												
Volt Range	600 V/50Hz												
Un (U1)	230.162V												
Freq (U1)	50.000Hz												
Dmin	0.10%												
Element1	Total											Judgement	Pass
	(Element1)											Judgement	Pass
Limit	dc[%]	3.30	dmax[%]	4.00	d(t)[ms]	500	Pst	1.00	Plt	0.65			
						3.30%				N:12			
No. 1	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
2	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
3	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass					
4	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
5	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass					
6	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass					
7	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
8	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass					
9	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
10	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass					
11	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass					
12	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
Result	Pass		Pass		Pass		Pass		Pass	0.067	Pass		

66%

Flicker Mode		Range Over						SCL		Line Filter	PA_00000.tif		
Flicker		U1	U2	U3	U4	U5	U6	U7	AVG		Freq Filter		
		11	12	13	14	15	16	17					
Count		12/12										Complete	
Interval		00:00s/10:00s											
Element	1												
Volt Range	600 V/50Hz												
Un (U1)	230.160V												
Freq (U1)	50.000Hz												
Dmin	0.10%												
Element1	Total											Judgement	Pass
	(Element1)											Judgement	Pass
Limit	dc[%]	3.30	dmax[%]	4.00	d(t)[ms]	500	Pst	1.00	Plt	0.65			
						3.30%				N:12			
No. 1	0.000	Pass	0.000	Pass	0.0	Pass	0.065	Pass					
2	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
3	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
4	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass					
5	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass					
6	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass					
7	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass					
8	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
9	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
10	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass					
11	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
12	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
Result	Pass		Pass		Pass		Pass		Pass	0.067	Pass		

100%

Flicker Mode		Range Over						SCL		Line Filter	PA_00001.tif		
Flicker		U1	U2	U3	U4	U5	U6	U7	AVG		Freq Filter		
		11	12	13	14	15	16	17					
Count		12/12										Complete	
Interval		00:00s/10:00s											
Element	1												
Volt Range	600 V/50Hz												
Un (U1)	230.161V												
Freq (U1)	50.000Hz												
Dmin	0.10%												
Element1	Total											Judgement	Pass
	(Element1)											Judgement	Pass
Limit	dc[%]	3.30	dmax[%]	4.00	d(t)[ms]	500	Pst	1.00	Plt	0.65			
						3.30%				N:12			
No. 1	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
2	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass					
3	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
4	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
5	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
6	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass					
7	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
8	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass					
9	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
10	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass					
11	0.000	Pass	0.000	Pass	0.0	Pass	0.068	Pass					
12	0.000	Pass	0.000	Pass	0.0	Pass	0.067	Pass					
Result	Pass		Pass		Pass		Pass		Pass	0.067	Pass		

Model: BD3KTL-RL1 tested with battery VT48100E-P1, charging				
Flicker measurement under ambient condition 55°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.061	0.072	0.065
PLT	≤ 0.65	0.061	0.069	0.064
dc	≤ 3.30%	0.00	0.00	0.00
dmax	4%	0.00	0.00	0.00
Model: BD3KTL-RL1 tested with battery VT48100E-P1, discharging				
Flicker measurement under ambient condition 55°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.054	0.056	0.057
PLT	≤ 0.65	0.053	0.056	0.056
dc	≤ 3.30%	0.00	0.00	0.00
dmax	4%	0.00	0.00	0.00

Charging

Flicker measurement under ambient condition 55°C

33%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element: 1
Volt Range: 600 V/50Hz
Un (U1): 230.026V
Freq (U1): 50.000Hz
Dmin: 0.10%

	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.053 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.053 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.054 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.053 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.053 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.053 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.053 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.053 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.054 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.054 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.055 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.055 Pass	
Result	Pass	Pass	Pass	Pass	0.053 Pass

66%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element: 1
Volt Range: 600 V/50Hz
Un (U1): 230.295V
Freq (U1): 50.000Hz
Dmin: 0.10%

	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.072 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.071 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.069 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.070 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.069 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.069 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.068 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.069 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.070 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.069 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.069 Pass	
Result	Pass	Pass	Pass	Pass	0.069 Pass

100%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element: 1
Volt Range: 600 V/50Hz
Un (U1): 230.296V
Freq (U1): 50.000Hz
Dmin: 0.10%

	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
Result	Pass	Pass	Pass	Pass	0.064 Pass

Discharging

Flicker measurement under ambient condition 55°C

33%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element 1
Volt Range: 600 V/50Hz
Un (U1): 230.297V
Freq (U1): 50.000Hz
Dmin: 0.10%

Limit	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit
	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
Result	Pass	Pass	Pass	Pass	0.064 Pass

66%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element 1
Volt Range: 600 V/50Hz
Un (U1): 230.158V
Freq (U1): 50.000Hz
Dmin: 0.10%

Limit	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit
	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.055 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.055 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.055 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.055 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.055 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.055 Pass	
Result	Pass	Pass	Pass	Pass	0.056 Pass

100%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element 1
Volt Range: 600 V/50Hz
Un (U1): 230.158V
Freq (U1): 50.000Hz
Dmin: 0.10%

Limit	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit
	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.055 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.057 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.057 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.055 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.057 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.056 Pass	
Result	Pass	Pass	Pass	Pass	0.056 Pass

Model: BD3KTL-RL1 tested with battery VT48100E-P1, charging				
Flicker measurement under ambient condition -10°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.066	0.067	0.069
PLT	≤ 0.65	0.064	0.066	0.068
dc	≤ 3.30%	0.00	0.00	0.00
dmax	4%	0.00	0.00	0.00
Model: BD3KTL-RL1 tested with battery VT48100E-P1, discharging				
Flicker measurement under ambient condition -10°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.068	0.068	0.068
PLT	≤ 0.65	0.066	0.066	0.066
dc	≤ 3.30%	0.00	0.00	0.00
dmax	4%	0.00	0.00	0.00

Charging

Flicker measurement under ambient condition -10°C

33%

ZG

Flicker Mode: Flicker

Range Over: U1 U2 U3 U4 U5 U6 U7
I1 I2 I3 I4 I5 I6 I7

SCL Line Filter

AVG Freq Filter

PA_00000.tif

Count: 12/12 Complete

Interval: 00:00s/10:00s

Element: 1

Volt Range: 600 V/50Hz Element1: Total Judgement: Pass

Un (U1): 230.161V (Element1) Judgement: Pass

Freq (U1): 50.000Hz

Dmin: 0.10%

	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.063 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
Result	Pass	Pass	Pass	Pass	0.064 Pass

66%

ZG

Flicker Mode: Flicker

Range Over: U1 U2 U3 U4 U5 U6 U7
I1 I2 I3 I4 I5 I6 I7

SCL Line Filter

AVG Freq Filter

PA_00000.tif

Count: 12/12 Complete

Interval: 00:00s/01:00s

Element: 1

Volt Range: 600 V/50Hz Element1: Total Judgement: Pass

Un (U1): 230.161V (Element1) Judgement: Pass

Freq (U1): 50.000Hz

Dmin: 0.10%

	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
Result	Pass	Pass	Pass	Pass	0.066 Pass

100%

ZG

Flicker Mode: Flicker

Range Over: U1 U2 U3 U4 U5 U6 U7
I1 I2 I3 I4 I5 I6 I7

SCL Line Filter

AVG Freq Filter

PA_00001.tif

Count: 12/12 Complete

Interval: 00:00s/01:00s

Element: 1

Volt Range: 600 V/50Hz Element1: Total Judgement: Pass

Un (U1): 230.160V (Element1) Judgement: Pass

Freq (U1): 50.000Hz

Dmin: 0.10%

	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.068 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.069 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.068 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.068 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.068 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.069 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.069 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
Result	Pass	Pass	Pass	Pass	0.068 Pass

Discharging

Flicker measurement under ambient condition -10°C

33%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element 1
Volt Range: 600 V/50Hz
Un (U1): 230.160V
Freq (U1): 50.000Hz
Dmin: 0.10%

	dc[%]	dmax[%]	d(t)[ms]	Pst	PIt
Limit	3.30	4.00	500	1.00	0.65
			3.30%		N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.068 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.068 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.064 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
Result	Pass	Pass	Pass	Pass	0.066 Pass

66%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element 1
Volt Range: 600 V/50Hz
Un (U1): 230.161V
Freq (U1): 50.000Hz
Dmin: 0.10%

	dc[%]	dmax[%]	d(t)[ms]	Pst	PIt
Limit	3.30	4.00	500	1.00	0.65
			3.30%		N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.068 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
Result	Pass	Pass	Pass	Pass	0.066 Pass

100%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element 1
Volt Range: 600 V/50Hz
Un (U1): 230.160V
Freq (U1): 50.000Hz
Dmin: 0.10%

	dc[%]	dmax[%]	d(t)[ms]	Pst	PIt
Limit	3.30	4.00	500	1.00	0.65
			3.30%		N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.068 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.066 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.065 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.067 Pass	
Result	Pass	Pass	Pass	Pass	0.066 Pass

Model: BD6KTL-RL1 tested with PV mode				
Flicker measurement under ambient condition 25°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.06	0.14	0.04
PLT	≤ 0.65	0.05	0.14	0.04
dc	≤ 3.30%	0.11	0.03	0.00
dmax	4%	0.28	0.13	0.00
Flicker measurement under ambient condition 55°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.06	0.14	0.05
PLT	≤ 0.65	0.05	0.14	0.05
dc	≤ 3.30%	0.12	0.02	0.06
dmax	4%	0.19	0.16	0.11
Flicker measurement under ambient condition -10°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.04	0.14	0.05
PLT	≤ 0.65	0.03	0.14	0.05
dc	≤ 3.30%	0.11	0.01	0.02
dmax	4%	0.21	0.12	0.11

Flicker measurement under ambient condition 25°C

33%

Flicker Mode		Range Over		SCL		Line Filter	
Flicker		U1 U2 U3 U4 U5 U6 U7	U1 U2 U3 U4 U5 U6 U7	<input type="checkbox"/>		<input type="checkbox"/>	
		U1 U2 U3 U4 U5 U6 U7	U1 U2 U3 U4 U5 U6 U7	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
Count		12/12		Complete			
Interval		00:00s/10:00s					
Element	1			Element1	Judgement	Pass	
Volt Range	600 V/50Hz			Total	Judgement	Pass	
Un (U1)	230.238V			(Element1)			
Freq (U1)	50.000Hz						
Dmin	0.10%						
Limit	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit		
	3.30	4.00	500	1.00	0.65		
			3.30%		N:12		
No. 1	0.108	0.149	0.0	0.040		Pass	
2	0.109	0.191	0.0	0.043		Pass	
3	0.107	0.183	0.0	0.047		Pass	
4	0.114	0.279	0.0	0.056		Pass	
5	0.109	0.137	0.0	0.057		Pass	
6	0.108	0.138	0.0	0.056		Pass	
7	0.095	0.139	0.0	0.056		Pass	
8	0.100	0.155	0.0	0.056		Pass	
9	0.105	0.145	0.0	0.056		Pass	
10	0.109	0.135	0.0	0.056		Pass	
11	0.105	0.133	0.0	0.056		Pass	
12	0.095	0.172	0.0	0.056		Pass	
Result	Pass	Pass	Pass	Pass	0.054	Pass	

66%

Flicker Mode		Range Over		SCL		Line Filter	
Flicker		U1 U2 U3 U4 U5 U6 U7	U1 U2 U3 U4 U5 U6 U7	<input type="checkbox"/>		<input type="checkbox"/>	
		U1 U2 U3 U4 U5 U6 U7	U1 U2 U3 U4 U5 U6 U7	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
Count		12/12		Complete			
Interval		00:00s/10:00s					
Element	1			Element1	Judgement	Pass	
Volt Range	600 V/50Hz			Total	Judgement	Pass	
Un (U1)	230.269V			(Element1)			
Freq (U1)	50.000Hz						
Dmin	0.10%						
Limit	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit		
	3.30	4.00	500	1.00	0.65		
			3.30%		N:12		
No. 1	0.016	0.101	0.0	0.136		Pass	
2	0.000	0.000	0.0	0.136		Pass	
3	0.015	0.116	0.0	0.137		Pass	
4	0.009	0.102	0.0	0.136		Pass	
5	0.000	0.000	0.0	0.136		Pass	
6	0.003	0.101	0.0	0.135		Pass	
7	0.000	0.000	0.0	0.135		Pass	
8	0.000	0.000	0.0	0.135		Pass	
9	0.008	0.119	0.0	0.135		Pass	
10	0.000	0.000	0.0	0.135		Pass	
11	0.027	0.112	0.0	0.136		Pass	
12	0.024	0.132	0.0	0.135		Pass	
Result	Pass	Pass	Pass	Pass	0.136	Pass	

100%

Flicker Mode		Range Over		SCL		Line Filter	
Flicker		U1 U2 U3 U4 U5 U6 U7	U1 U2 U3 U4 U5 U6 U7	<input type="checkbox"/>		<input type="checkbox"/>	
		U1 U2 U3 U4 U5 U6 U7	U1 U2 U3 U4 U5 U6 U7	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
Count		12/12		Complete			
Interval		00:00s/10:00s					
Element	1			Element1	Judgement	Pass	
Volt Range	600 V/50Hz			Total	Judgement	Pass	
Un (U1)	230.288V			(Element1)			
Freq (U1)	50.000Hz						
Dmin	0.10%						
Limit	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit		
	3.30	4.00	500	1.00	0.65		
			3.30%		N:12		
No. 1	0.000	0.000	0.0	0.044		Pass	
2	0.000	0.000	0.0	0.044		Pass	
3	0.000	0.000	0.0	0.044		Pass	
4	0.000	0.000	0.0	0.044		Pass	
5	0.000	0.000	0.0	0.043		Pass	
6	0.000	0.000	0.0	0.042		Pass	
7	0.000	0.000	0.0	0.042		Pass	
8	0.000	0.000	0.0	0.042		Pass	
9	0.000	0.000	0.0	0.042		Pass	
10	0.000	0.000	0.0	0.042		Pass	
11	0.000	0.000	0.0	0.043		Pass	
12	0.000	0.000	0.0	0.042		Pass	
Result	Pass	Pass	Pass	Pass	0.043	Pass	

Flicker measurement under ambient condition 55°C

33%

ZIG Flicker Mode: Flicker | Range Over: U1 U2 U3 U4 U5 U6 U7 | SCL Line Filter | AVG Freq Filter

Count: 12/12 Complete | Interval: 00:00s/10:00s

Element: 1 | Volt Range: 600 V/50Hz | Element1 Judgement: Pass
 Un (U1): 230.261V | Total Judgement: Pass
 Freq (U1): 50.000Hz | (Element1)
 Dmin: 0.10%

	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.087 Pass	0.188 Pass	0.0 Pass	0.041 Pass	
2	0.085 Pass	0.159 Pass	0.0 Pass	0.039 Pass	
3	0.110 Pass	0.159 Pass	0.0 Pass	0.048 Pass	
4	0.113 Pass	0.161 Pass	0.0 Pass	0.054 Pass	
5	0.113 Pass	0.153 Pass	0.0 Pass	0.053 Pass	
6	0.115 Pass	0.136 Pass	0.0 Pass	0.058 Pass	
7	0.106 Pass	0.162 Pass	0.0 Pass	0.061 Pass	
8	0.103 Pass	0.137 Pass	0.0 Pass	0.057 Pass	
9	0.104 Pass	0.156 Pass	0.0 Pass	0.056 Pass	
10	0.097 Pass	0.134 Pass	0.0 Pass	0.054 Pass	
11	0.103 Pass	0.162 Pass	0.0 Pass	0.054 Pass	
12	0.099 Pass	0.154 Pass	0.0 Pass	0.057 Pass	
Result	Pass	Pass	Pass	Pass	0.053 Pass

66%

ZIG Flicker Mode: Flicker | Range Over: U1 U2 U3 U4 U5 U6 U7 | SCL Line Filter | AVG Freq Filter

Count: 12/12 Complete | Interval: 00:00s/10:00s

Element: 1 | Volt Range: 600 V/50Hz | Element1 Judgement: Pass
 Un (U1): 230.261V | Total Judgement: Pass
 Freq (U1): 50.000Hz | (Element1)
 Dmin: 0.10%

	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.004 Pass	0.111 Pass	0.0 Pass	0.142 Pass	
2	0.003 Pass	0.119 Pass	0.0 Pass	0.141 Pass	
3	0.011 Pass	0.101 Pass	0.0 Pass	0.140 Pass	
4	0.012 Pass	0.111 Pass	0.0 Pass	0.140 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.140 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.140 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.139 Pass	
8	0.018 Pass	0.158 Pass	0.0 Pass	0.140 Pass	
9	0.014 Pass	0.123 Pass	0.0 Pass	0.139 Pass	
10	0.009 Pass	0.107 Pass	0.0 Pass	0.140 Pass	
11	0.006 Pass	0.102 Pass	0.0 Pass	0.139 Pass	
12	0.009 Pass	0.117 Pass	0.0 Pass	0.140 Pass	
Result	Pass	Pass	Pass	Pass	0.140 Pass

100%

ZIG Flicker Mode: Flicker | Range Over: U1 U2 U3 U4 U5 U6 U7 | SCL Line Filter | AVG Freq Filter

Count: 12/12 Complete | Interval: 00:00s/10:00s

Element: 1 | Volt Range: 600 V/50Hz | Element1 Judgement: Pass
 Un (U1): 230.261V | Total Judgement: Pass
 Freq (U1): 50.000Hz | (Element1)
 Dmin: 0.10%

	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.053 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.051 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.049 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.050 Pass	
5	0.017 Pass	0.108 Pass	0.0 Pass	0.050 Pass	
6	0.020 Pass	0.106 Pass	0.0 Pass	0.049 Pass	
7	0.014 Pass	0.104 Pass	0.0 Pass	0.050 Pass	
8	0.057 Pass	0.109 Pass	0.0 Pass	0.050 Pass	
9	0.049 Pass	0.108 Pass	0.0 Pass	0.049 Pass	
10	0.002 Pass	0.106 Pass	0.0 Pass	0.048 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.049 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.049 Pass	
Result	Pass	Pass	Pass	Pass	0.050 Pass

Flicker measurement under ambient condition -10°C

33%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element: 1
Volt Range: 600 V/50Hz
Un (U1): 230.272V
Freq (U1): 50.000Hz
Dmin: 0.10%

Element1: Total (Element1)
Judgement: Pass
Judgement: Pass

	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.114 Pass	0.159 Pass	0.0 Pass	0.044 Pass	
2	0.068 Pass	0.109 Pass	0.0 Pass	0.037 Pass	
3	0.092 Pass	0.132 Pass	0.0 Pass	0.027 Pass	
4	0.017 Pass	0.165 Pass	0.0 Pass	0.033 Pass	
5	0.098 Pass	0.213 Pass	0.0 Pass	0.025 Pass	
6	0.071 Pass	0.133 Pass	0.0 Pass	0.025 Pass	
7	0.078 Pass	0.171 Pass	0.0 Pass	0.026 Pass	
8	0.104 Pass	0.199 Pass	0.0 Pass	0.032 Pass	
9	0.036 Pass	0.151 Pass	0.0 Pass	0.027 Pass	
10	0.095 Pass	0.152 Pass	0.0 Pass	0.028 Pass	
11	0.081 Pass	0.146 Pass	0.0 Pass	0.030 Pass	
12	0.090 Pass	0.144 Pass	0.0 Pass	0.033 Pass	
Result	Pass	Pass	Pass	Pass	0.032 Pass

66%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element: 1
Volt Range: 600 V/50Hz
Un (U1): 230.261V
Freq (U1): 50.000Hz
Dmin: 0.10%

Element1: Total (Element1)
Judgement: Pass
Judgement: Pass

	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.010 Pass	0.119 Pass	0.0 Pass	0.139 Pass	
2	0.007 Pass	0.111 Pass	0.0 Pass	0.138 Pass	
3	0.006 Pass	0.114 Pass	0.0 Pass	0.137 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.136 Pass	
5	0.007 Pass	0.104 Pass	0.0 Pass	0.136 Pass	
6	0.009 Pass	0.103 Pass	0.0 Pass	0.137 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.136 Pass	
8	0.006 Pass	0.105 Pass	0.0 Pass	0.137 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.137 Pass	
10	0.011 Pass	0.104 Pass	0.0 Pass	0.136 Pass	
11	0.010 Pass	0.119 Pass	0.0 Pass	0.137 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.137 Pass	
Result	Pass	Pass	Pass	Pass	0.137 Pass

100%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element: 1
Volt Range: 600 V/50Hz
Un (U1): 230.261V
Freq (U1): 50.000Hz
Dmin: 0.10%

Element1: Total (Element1)
Judgement: Pass
Judgement: Pass

	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.048 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.047 Pass	
3	0.013 Pass	0.101 Pass	0.0 Pass	0.046 Pass	
4	0.009 Pass	0.101 Pass	0.0 Pass	0.045 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.046 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.046 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.046 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.046 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.046 Pass	
10	0.020 Pass	0.108 Pass	0.0 Pass	0.046 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.047 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.047 Pass	
Result	Pass	Pass	Pass	Pass	0.046 Pass

Model: BD6KTL-RL1 tested with battery VT48100E-P1, charging				
Flicker measurement under ambient condition 25°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.038	0.139	0.046
PLT	≤ 0.65	0.032	0.138	0.045
dc	≤ 3.30%	0.138	0.036	0.090
dmax	4%	0.268	0.127	0.128

Model: BD6KTL-RL1 tested with battery VT48100E-P1, discharging				
Flicker measurement under ambient condition 25°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.082	0.157	0.069
PLT	≤ 0.65	0.076	0.154	0.066
dc	≤ 3.30%	0.131	0.035	0.018
dmax	4%	0.204	0.146	0.107

Charging

Flicker measurement under ambient condition 25°C

33%

Flicker Mode		Range Over						SCL		Line Filter		
Flicker		U1	U2	U3	U4	U5	U6	U7	<input type="checkbox"/>		<input type="checkbox"/>	
		I1	I2	I3	I4	I5	I6	I7	<input type="checkbox"/>		<input type="checkbox"/>	
Count		12/12						Complete				
Interval		00:00s/10:00s										
Element	1						Element1	Judgement				
Volt Range	600 V/50Hz						Total	Judgement				
Un (U1)	230.073V						(Element1)	Pass				
Freq (U1)	50.237Hz											
Dmin	0.10%											
No.	dc[%]	dmax[%]	d(t)[ms]	Pst	PIt							
Limit	3.30	4.00	500	1.00	0.65							
			3.30%		N:12							
No. 1	0.138	0.241	0.0	0.035		Pass	Pass	Pass	Pass	Pass		
2	0.083	0.176	0.0	0.024		Pass	Pass	Pass	Pass	Pass		
3	0.095	0.162	0.0	0.036		Pass	Pass	Pass	Pass	Pass		
4	0.091	0.156	0.0	0.038		Pass	Pass	Pass	Pass	Pass		
5	0.096	0.130	0.0	0.036		Pass	Pass	Pass	Pass	Pass		
6	0.100	0.202	0.0	0.036		Pass	Pass	Pass	Pass	Pass		
7	0.096	0.138	0.0	0.025		Pass	Pass	Pass	Pass	Pass		
8	0.131	0.192	0.0	0.031		Pass	Pass	Pass	Pass	Pass		
9	0.097	0.128	0.0	0.025		Pass	Pass	Pass	Pass	Pass		
10	0.081	0.198	0.0	0.030		Pass	Pass	Pass	Pass	Pass		
11	0.000	0.000	0.0	0.019		Pass	Pass	Pass	Pass	Pass		
12	0.059	0.268	0.0	0.031		Pass	Pass	Pass	Pass	Pass		
Result	Pass	Pass	Pass	Pass	0.032	Pass	Pass	Pass	Pass	Pass		

66%

Flicker Mode		Range Over						SCL		Line Filter		
Flicker		U1	U2	U3	U4	U5	U6	U7	<input type="checkbox"/>		<input type="checkbox"/>	
		I1	I2	I3	I4	I5	I6	I7	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
Count		12/12						Complete				
Interval		00:00s/10:00s										
Element	1						Element1	Judgement				
Volt Range	600 V/50Hz						Total	Judgement				
Un (U1)	230.074V						(Element1)	Pass				
Freq (U1)	50.069Hz											
Dmin	0.10%											
No.	dc[%]	dmax[%]	d(t)[ms]	Pst	PIt							
Limit	3.30	4.00	500	1.00	0.65							
			3.30%		N:12							
No. 1	0.036	0.126	0.0	0.137		Pass	Pass	Pass	Pass	Pass		
2	0.013	0.101	0.0	0.138		Pass	Pass	Pass	Pass	Pass		
3	0.020	0.108	0.0	0.139		Pass	Pass	Pass	Pass	Pass		
4	0.033	0.103	0.0	0.137		Pass	Pass	Pass	Pass	Pass		
5	0.000	0.000	0.0	0.138		Pass	Pass	Pass	Pass	Pass		
6	0.000	0.000	0.0	0.138		Pass	Pass	Pass	Pass	Pass		
7	0.015	0.127	0.0	0.138		Pass	Pass	Pass	Pass	Pass		
8	0.005	0.107	0.0	0.138		Pass	Pass	Pass	Pass	Pass		
9	0.004	0.120	0.0	0.137		Pass	Pass	Pass	Pass	Pass		
10	0.016	0.117	0.0	0.138		Pass	Pass	Pass	Pass	Pass		
11	0.007	0.101	0.0	0.137		Pass	Pass	Pass	Pass	Pass		
12	0.005	0.106	0.0	0.138		Pass	Pass	Pass	Pass	Pass		
Result	Pass	Pass	Pass	Pass	0.138	Pass	Pass	Pass	Pass	Pass		

100%

Flicker Mode		Range Over						SCL		Line Filter		
Flicker		U1	U2	U3	U4	U5	U6	U7	<input type="checkbox"/>		<input type="checkbox"/>	
		I1	I2	I3	I4	I5	I6	I7	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
Count		12/12						Complete				
Interval		00:00s/10:00s										
Element	1						Element1	Judgement				
Volt Range	600 V/50Hz						Total	Judgement				
Un (U1)	230.179V						(Element1)	Pass				
Freq (U1)	50.000Hz											
Dmin	0.10%											
No.	dc[%]	dmax[%]	d(t)[ms]	Pst	PIt							
Limit	3.30	4.00	500	1.00	0.65							
			3.30%		N:12							
No. 1	0.000	0.000	0.0	0.045		Pass	Pass	Pass	Pass	Pass		
2	0.090	0.128	0.0	0.046		Pass	Pass	Pass	Pass	Pass		
3	0.000	0.000	0.0	0.045		Pass	Pass	Pass	Pass	Pass		
4	0.000	0.000	0.0	0.045		Pass	Pass	Pass	Pass	Pass		
5	0.000	0.000	0.0	0.046		Pass	Pass	Pass	Pass	Pass		
6	0.000	0.000	0.0	0.046		Pass	Pass	Pass	Pass	Pass		
7	0.053	0.106	0.0	0.045		Pass	Pass	Pass	Pass	Pass		
8	0.064	0.113	0.0	0.045		Pass	Pass	Pass	Pass	Pass		
9	0.000	0.000	0.0	0.045		Pass	Pass	Pass	Pass	Pass		
10	0.000	0.000	0.0	0.046		Pass	Pass	Pass	Pass	Pass		
11	0.000	0.000	0.0	0.045		Pass	Pass	Pass	Pass	Pass		
12	0.029	0.102	0.0	0.045		Pass	Pass	Pass	Pass	Pass		
Result	Pass	Pass	Pass	Pass	0.045	Pass	Pass	Pass	Pass	Pass		

Discharging

Flicker measurement under ambient condition 25°C

33%

Flicker Mode		Range Over						SCL		Line Filter		
Flicker		U1	U2	U3	U4	U5	U6	U7	AVG		Freq Filter	
		11	12	13	14	15	16	17				
Count		12/12						Complete				
Interval		00:00s/10:00s										
Element	1						Element1	Judgement	Pass			
Volt Range	600 V/50Hz						Total	Judgement	Pass			
Un (U1)	230.834V						(Element1)					
Freq (U1)	50.000Hz											
Dmin	0.10%											
Limit	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit							
	3.30	4.00	500	1.00	0.65							
			3.30%		N:12							
No. 1	0.098	Pass	0.152	Pass	0.0	Pass	0.070	Pass				
2	0.090	Pass	0.151	Pass	0.0	Pass	0.071	Pass				
3	0.115	Pass	0.166	Pass	0.0	Pass	0.072	Pass				
4	0.113	Pass	0.165	Pass	0.0	Pass	0.076	Pass				
5	0.112	Pass	0.164	Pass	0.0	Pass	0.075	Pass				
6	0.114	Pass	0.196	Pass	0.0	Pass	0.079	Pass				
7	0.111	Pass	0.167	Pass	0.0	Pass	0.076	Pass				
8	0.101	Pass	0.169	Pass	0.0	Pass	0.075	Pass				
9	0.131	Pass	0.204	Pass	0.0	Pass	0.078	Pass				
10	0.115	Pass	0.171	Pass	0.0	Pass	0.082	Pass				
11	0.116	Pass	0.167	Pass	0.0	Pass	0.079	Pass				
12	0.113	Pass	0.174	Pass	0.0	Pass	0.079	Pass				
Result	Pass	Pass	Pass	Pass	Pass	0.076	Pass					

66%

Flicker Mode		Range Over						SCL		Line Filter		
Flicker		U1	U2	U3	U4	U5	U6	U7	AVG		Freq Filter	
		11	12	13	14	15	16	17				
Count		12/12						Complete				
Interval		00:00s/10:00s										
Element	1						Element1	Judgement	Pass			
Volt Range	600 V/50Hz						Total	Judgement	Pass			
Un (U1)	230.835V						(Element1)					
Freq (U1)	50.000Hz											
Dmin	0.10%											
Limit	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit							
	3.30	4.00	500	1.00	0.65							
			3.30%		N:12							
No. 1	0.035	Pass	0.146	Pass	0.0	Pass	0.152	Pass				
2	0.027	Pass	0.130	Pass	0.0	Pass	0.154	Pass				
3	0.029	Pass	0.140	Pass	0.0	Pass	0.152	Pass				
4	0.030	Pass	0.145	Pass	0.0	Pass	0.154	Pass				
5	0.027	Pass	0.141	Pass	0.0	Pass	0.154	Pass				
6	0.026	Pass	0.130	Pass	0.0	Pass	0.155	Pass				
7	0.030	Pass	0.135	Pass	0.0	Pass	0.154	Pass				
8	0.029	Pass	0.138	Pass	0.0	Pass	0.152	Pass				
9	0.022	Pass	0.128	Pass	0.0	Pass	0.155	Pass				
10	0.024	Pass	0.134	Pass	0.0	Pass	0.157	Pass				
11	0.022	Pass	0.141	Pass	0.0	Pass	0.156	Pass				
12	0.030	Pass	0.140	Pass	0.0	Pass	0.156	Pass				
Result	Pass	Pass	Pass	Pass	Pass	0.154	Pass					

100%

Flicker Mode		Range Over						SCL		Line Filter		
Flicker		U1	U2	U3	U4	U5	U6	U7	AVG		Freq Filter	
		11	12	13	14	15	16	17				
Count		12/12						Complete				
Interval		00:00s/10:00s										
Element	1						Element1	Judgement	Pass			
Volt Range	600 V/50Hz						Total	Judgement	Pass			
Un (U1)	231.048V						(Element1)					
Freq (U1)	50.000Hz											
Dmin	0.10%											
Limit	dc[%]	dmax[%]	d(t)[ms]	Pst	Pit							
	3.30	4.00	500	1.00	0.65							
			3.30%		N:12							
No. 1	0.010	Pass	0.101	Pass	0.0	Pass	0.065	Pass				
2	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass				
3	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass				
4	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass				
5	0.015	Pass	0.105	Pass	0.0	Pass	0.067	Pass				
6	0.016	Pass	0.102	Pass	0.0	Pass	0.068	Pass				
7	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass				
8	0.007	Pass	0.101	Pass	0.0	Pass	0.064	Pass				
9	0.018	Pass	0.105	Pass	0.0	Pass	0.066	Pass				
10	0.016	Pass	0.107	Pass	0.0	Pass	0.069	Pass				
11	0.000	Pass	0.000	Pass	0.0	Pass	0.066	Pass				
12	0.012	Pass	0.102	Pass	0.0	Pass	0.067	Pass				
Result	Pass	Pass	Pass	Pass	Pass	0.066	Pass					

Model: BD6KTL-RL1 tested with battery VT48100E-P1, charging				
Flicker measurement under ambient condition 55°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.058	0.135	0.043
PLT	≤ 0.65	0.053	0.135	0.041
dc	≤ 3.30%	0.127	0.051	0.000
dmax	4%	0.180	0.152	0.000
Model: BD6KTL-RL1 tested with battery VT48100E-P1, discharging				
Flicker measurement under ambient condition 55°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.044	0.139	0.049
PLT	≤ 0.65	0.037	0.138	0.047
dc	≤ 3.30%	0.115	0.013	0.008
dmax	4%	0.176	0.136	0.100

Charging

Flicker measurement under ambient condition 55°C

33%

ZLG		Flicker Mode		Range Over		SCL		Line Filter		
Flicker		U1	U2	U3	U4	U5	U6	U7	AVG	Freq Filter
		I1	I2	I3	I4	I5	I6	I7		
Count		12/12		Complete						
Interval		00:00s/10:00s								
Element	1		Element1		Judgement		Pass			
Volt Range	300 V/50Hz		Element1		Judgement		Pass			
Un (U1)	230.339V		Total		Judgement		Pass			
Freq (U1)	50.000Hz		(Element1)							
Dmin	0.10%									
	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt					
Limit	3.30	4.00	500	1.00	0.65					
			3.30%		N:12					
No. 1	0.103	0.139	0.0	0.058						
	Pass	Pass	Pass	Pass						
2	0.100	0.140	0.0	0.056						
	Pass	Pass	Pass	Pass						
3	0.112	0.141	0.0	0.055						
	Pass	Pass	Pass	Pass						
4	0.103	0.132	0.0	0.054						
	Pass	Pass	Pass	Pass						
5	0.091	0.144	0.0	0.054						
	Pass	Pass	Pass	Pass						
6	0.100	0.168	0.0	0.053						
	Pass	Pass	Pass	Pass						
7	0.096	0.139	0.0	0.052						
	Pass	Pass	Pass	Pass						
8	0.107	0.180	0.0	0.053						
	Pass	Pass	Pass	Pass						
9	0.107	0.173	0.0	0.052						
	Pass	Pass	Pass	Pass						
10	0.127	0.173	0.0	0.052						
	Pass	Pass	Pass	Pass						
11	0.112	0.137	0.0	0.052						
	Pass	Pass	Pass	Pass						
12	0.102	0.155	0.0	0.052						
	Pass	Pass	Pass	Pass						
Result	Pass	Pass	Pass	Pass	0.053	Pass				

66%

ZLG		Flicker Mode		Range Over		SCL		Line Filter		
Flicker		U1	U2	U3	U4	U5	U6	U7	AVG	Freq Filter
		I1	I2	I3	I4	I5	I6	I7		
Count		12/12		Complete						
Interval		00:00s/10:00s								
Element	1		Element1		Judgement		Pass			
Volt Range	300 V/50Hz		Element1		Judgement		Pass			
Un (U1)	230.370V		Total		Judgement		Pass			
Freq (U1)	50.000Hz		(Element1)							
Dmin	0.10%									
	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt					
Limit	3.30	4.00	500	1.00	0.65					
			3.30%		N:12					
No. 1	0.014	0.106	0.0	0.135						
	Pass	Pass	Pass	Pass						
2	0.008	0.105	0.0	0.135						
	Pass	Pass	Pass	Pass						
3	0.010	0.110	0.0	0.134						
	Pass	Pass	Pass	Pass						
4	0.005	0.120	0.0	0.135						
	Pass	Pass	Pass	Pass						
5	0.032	0.112	0.0	0.135						
	Pass	Pass	Pass	Pass						
6	0.051	0.152	0.0	0.135						
	Pass	Pass	Pass	Pass						
7	0.000	0.000	0.0	0.134						
	Pass	Pass	Pass	Pass						
8	0.007	0.101	0.0	0.134						
	Pass	Pass	Pass	Pass						
9	0.003	0.109	0.0	0.134						
	Pass	Pass	Pass	Pass						
10	0.008	0.112	0.0	0.135						
	Pass	Pass	Pass	Pass						
11	0.000	0.000	0.0	0.134						
	Pass	Pass	Pass	Pass						
12	0.000	0.000	0.0	0.134						
	Pass	Pass	Pass	Pass						
Result	Pass	Pass	Pass	Pass	0.135	Pass				

100%

ZLG		Flicker Mode		Range Over		SCL		Line Filter		
Flicker		U1	U2	U3	U4	U5	U6	U7	AVG	Freq Filter
		I1	I2	I3	I4	I5	I6	I7		
Count		12/12		Complete						
Interval		00:00s/10:00s								
Element	1		Element1		Judgement		Pass			
Volt Range	300 V/50Hz		Element1		Judgement		Pass			
Un (U1)	230.422V		Total		Judgement		Pass			
Freq (U1)	50.000Hz		(Element1)							
Dmin	0.10%									
	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt					
Limit	3.30	4.00	500	1.00	0.65					
			3.30%		N:12					
No. 1	0.000	0.000	0.0	0.043						
	Pass	Pass	Pass	Pass						
2	0.000	0.000	0.0	0.042						
	Pass	Pass	Pass	Pass						
3	0.000	0.000	0.0	0.042						
	Pass	Pass	Pass	Pass						
4	0.000	0.000	0.0	0.042						
	Pass	Pass	Pass	Pass						
5	0.000	0.000	0.0	0.041						
	Pass	Pass	Pass	Pass						
6	0.000	0.000	0.0	0.041						
	Pass	Pass	Pass	Pass						
7	0.000	0.000	0.0	0.041						
	Pass	Pass	Pass	Pass						
8	0.000	0.000	0.0	0.042						
	Pass	Pass	Pass	Pass						
9	0.000	0.000	0.0	0.041						
	Pass	Pass	Pass	Pass						
10	0.000	0.000	0.0	0.039						
	Pass	Pass	Pass	Pass						
11	0.000	0.000	0.0	0.040						
	Pass	Pass	Pass	Pass						
12	0.000	0.000	0.0	0.041						
	Pass	Pass	Pass	Pass						
Result	Pass	Pass	Pass	Pass	0.041	Pass				

Discharging

Flicker measurement under ambient condition 55°C

33%

ZLG Flicker Mode: Flicker Range Over: U1 U2 U3 U4 U5 U6 U7 U8 U9 U10 U11 U12 U13 U14 U15 U16 U17 SCL Line Filter AVG Freq Filter

Count: 12/12 Complete Interval: 00:00s/10:00s

Element: 1
 Volt Range: 600 V/50Hz
 Un (U1): 230.539V
 Freq (U1): 50.000Hz
 Dmin: 0.10%

Element1 Judgement: Pass
 Total Judgement: Pass

	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.086 Pass	0.119 Pass	0.0 Pass	0.028 Pass	
2	0.112 Pass	0.162 Pass	0.0 Pass	0.043 Pass	
3	0.093 Pass	0.152 Pass	0.0 Pass	0.039 Pass	
4	0.062 Pass	0.146 Pass	0.0 Pass	0.034 Pass	
5	0.101 Pass	0.175 Pass	0.0 Pass	0.031 Pass	
6	0.099 Pass	0.133 Pass	0.0 Pass	0.030 Pass	
7	0.115 Pass	0.164 Pass	0.0 Pass	0.037 Pass	
8	0.103 Pass	0.145 Pass	0.0 Pass	0.043 Pass	
9	0.100 Pass	0.138 Pass	0.0 Pass	0.044 Pass	
10	0.096 Pass	0.141 Pass	0.0 Pass	0.040 Pass	
11	0.092 Pass	0.176 Pass	0.0 Pass	0.039 Pass	
12	0.108 Pass	0.149 Pass	0.0 Pass	0.033 Pass	
Result	Pass	Pass	Pass	Pass	0.037 Pass

66%

ZLG Flicker Mode: Flicker Range Over: U1 U2 U3 U4 U5 U6 U7 U8 U9 U10 U11 U12 U13 U14 U15 U16 U17 SCL Line Filter AVG Freq Filter

Count: 12/12 Complete Interval: 00:00s/10:00s

Element: 1
 Volt Range: 600 V/50Hz
 Un (U1): 230.709V
 Freq (U1): 50.000Hz
 Dmin: 0.10%

Element1 Judgement: Pass
 Total Judgement: Pass

	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.003 Pass	0.103 Pass	0.0 Pass	0.137 Pass	
2	0.004 Pass	0.106 Pass	0.0 Pass	0.137 Pass	
3	0.010 Pass	0.106 Pass	0.0 Pass	0.138 Pass	
4	0.009 Pass	0.102 Pass	0.0 Pass	0.138 Pass	
5	0.010 Pass	0.111 Pass	0.0 Pass	0.138 Pass	
6	0.017 Pass	0.126 Pass	0.0 Pass	0.138 Pass	
7	0.008 Pass	0.136 Pass	0.0 Pass	0.138 Pass	
8	0.013 Pass	0.124 Pass	0.0 Pass	0.139 Pass	
9	0.012 Pass	0.127 Pass	0.0 Pass	0.138 Pass	
10	0.009 Pass	0.118 Pass	0.0 Pass	0.138 Pass	
11	0.011 Pass	0.110 Pass	0.0 Pass	0.137 Pass	
12	0.007 Pass	0.101 Pass	0.0 Pass	0.137 Pass	
Result	Pass	Pass	Pass	Pass	0.138 Pass

100%

ZLG Flicker Mode: Flicker Range Over: U1 U2 U3 U4 U5 U6 U7 U8 U9 U10 U11 U12 U13 U14 U15 U16 U17 SCL Line Filter AVG Freq Filter

Count: 12/12 Complete Interval: 00:00s/10:00s

Element: 1
 Volt Range: 600 V/50Hz
 Un (U1): 230.846V
 Freq (U1): 50.000Hz
 Dmin: 0.10%

Element1 Judgement: Pass
 Total Judgement: Pass

	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt
Limit	3.30	4.00	500 3.30%	1.00	0.65 N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.045 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.047 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.049 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.047 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.047 Pass	
6	0.000 Pass	0.000 Pass	0.0 Pass	0.048 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.048 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.048 Pass	
9	0.008 Pass	0.100 Pass	0.0 Pass	0.048 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.047 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.047 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.047 Pass	
Result	Pass	Pass	Pass	Pass	0.047 Pass

Model: BD6KTL-RL1 tested with battery VT48100E-P1, charging				
Flicker measurement under ambient condition -10°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.074	0.140	0.061
PLT	≤ 0.65	0.059	0.136	0.045
dc	≤ 3.30%	0.112	0.075	0.104
dmax	4%	0.300	0.277	0.256
Model: BD6KTL-RL1 tested with battery VT48100E-P1, discharging				
Flicker measurement under ambient condition -10°C				
P_{bin}(%)	Limit	33%	66%	100%
PST	≤ 1	0.048	0.143	0.055
PLT	≤ 0.65	0.041	0.141	0.052
dc	≤ 3.30%	0.118	0.043	0.013
dmax	4%	0.157	0.130	0.104

Charging

Flicker measurement under ambient condition -10°C

33%

Flicker Mode		Range Over						SCL		Line Filter		
Flicker		U1	U2	U3	U4	U5	U6	U7	AVG		Freq Filter	
		U1	U2	U3	U4	U5	U6	U7				
Count		12/12						Complete				
Interval		00:00s/10:00s										
Element		1						Element1		Judgement		
Volt Range		600 V/50Hz						Total		Judgement		
Un (U1)		230.621V						(Element1)		Pass		
Freq (U1)		50.000Hz										
Dmin		0.10%										
	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt							
Limit	3.30	4.00	500	1.00	0.65							
			3.30%		N:12							
No. 1	0.096	0.137	0.0	0.057								
2	0.094	0.143	0.0	0.056								
3	0.101	0.136	0.0	0.058								
4	0.099	0.132	0.0	0.056								
5	0.108	0.150	0.0	0.057								
6	0.112	0.152	0.0	0.057								
7	0.100	0.205	0.0	0.057								
8	0.111	0.300	0.0	0.058								
9	0.108	0.144	0.0	0.059								
10	0.096	0.141	0.0	0.059								
11	0.109	0.219	0.0	0.059								
12	0.101	0.227	0.0	0.074								
Result	Pass	Pass	Pass	Pass	0.059	Pass						

66%

Flicker Mode		Range Over						SCL		Line Filter		
Flicker		U1	U2	U3	U4	U5	U6	U7	AVG		Freq Filter	
		U1	U2	U3	U4	U5	U6	U7				
Count		12/12						Complete				
Interval		00:00s/10:00s										
Element		1						Element1		Judgement		
Volt Range		600 V/50Hz						Total		Judgement		
Un (U1)		230.511V						(Element1)		Pass		
Freq (U1)		50.000Hz										
Dmin		0.10%										
	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt							
Limit	3.30	4.00	500	1.00	0.65							
			3.30%		N:12							
No. 1	0.007	0.105	0.0	0.136								
2	0.005	0.101	0.0	0.136								
3	0.000	0.000	0.0	0.135								
4	0.002	0.105	0.0	0.136								
5	0.004	0.115	0.0	0.135								
6	0.000	0.000	0.0	0.135								
7	0.000	0.000	0.0	0.135								
8	0.014	0.102	0.0	0.136								
9	0.000	0.000	0.0	0.135								
10	0.034	0.105	0.0	0.136								
11	0.020	0.110	0.0	0.135								
12	0.075	0.277	0.0	0.140								
Result	Pass	Pass	Pass	Pass	0.136	Pass						

100%

Flicker Mode		Range Over						SCL		Line Filter		
Flicker		U1	U2	U3	U4	U5	U6	U7	AVG		Freq Filter	
		U1	U2	U3	U4	U5	U6	U7				
Count		12/12						Complete				
Interval		00:00s/10:00s										
Element		1						Element1		Judgement		
Volt Range		600 V/50Hz						Total		Judgement		
Un (U1)		230.712V						(Element1)		Pass		
Freq (U1)		50.000Hz										
Dmin		0.10%										
	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt							
Limit	3.30	4.00	500	1.00	0.65							
			3.30%		N:12							
No. 1	0.087	0.124	0.0	0.043								
2	0.000	0.000	0.0	0.043								
3	0.000	0.000	0.0	0.042								
4	0.000	0.000	0.0	0.042								
5	0.000	0.000	0.0	0.042								
6	0.000	0.000	0.0	0.042								
7	0.000	0.000	0.0	0.042								
8	0.000	0.000	0.0	0.043								
9	0.000	0.000	0.0	0.043								
10	0.000	0.000	0.0	0.043								
11	0.034	0.105	0.0	0.043								
12	0.104	0.256	0.0	0.061								
Result	Pass	Pass	Pass	Pass	0.045	Pass						

Discharging

Flicker measurement under ambient condition -10°C

33%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element: 1
Volt Range: 600 V/50Hz
Un (U1): 230.630V
Freq (U1): 50.000Hz
Dmin: 0.10%

Limit	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt
3.30		4.00	500	1.00	0.65
			3.30%		N:12
No. 1	0.103 Pass	0.149 Pass	0.0 Pass	0.046 Pass	
2	0.106 Pass	0.147 Pass	0.0 Pass	0.045 Pass	
3	0.109 Pass	0.157 Pass	0.0 Pass	0.038 Pass	
4	0.065 Pass	0.146 Pass	0.0 Pass	0.040 Pass	
5	0.094 Pass	0.153 Pass	0.0 Pass	0.045 Pass	
6	0.104 Pass	0.151 Pass	0.0 Pass	0.048 Pass	
7	0.106 Pass	0.147 Pass	0.0 Pass	0.042 Pass	
8	0.060 Pass	0.110 Pass	0.0 Pass	0.034 Pass	
9	0.074 Pass	0.128 Pass	0.0 Pass	0.027 Pass	
10	0.098 Pass	0.151 Pass	0.0 Pass	0.037 Pass	
11	0.118 Pass	0.150 Pass	0.0 Pass	0.041 Pass	
12	0.088 Pass	0.141 Pass	0.0 Pass	0.036 Pass	
Result	Pass	Pass	Pass	Pass	0.041 Pass

66%

Count: 12/12 Complete
Interval: 00:00s/10:00s

Element: 1
Volt Range: 600 V/50Hz
Un (U1): 230.708V
Freq (U1): 50.000Hz
Dmin: 0.10%

Limit	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt
3.30		4.00	500	1.00	0.65
			3.30%		N:12
No. 1	0.043 Pass	0.130 Pass	0.0 Pass	0.140 Pass	
2	0.036 Pass	0.115 Pass	0.0 Pass	0.140 Pass	
3	0.027 Pass	0.113 Pass	0.0 Pass	0.141 Pass	
4	0.022 Pass	0.107 Pass	0.0 Pass	0.142 Pass	
5	0.019 Pass	0.108 Pass	0.0 Pass	0.142 Pass	
6	0.017 Pass	0.111 Pass	0.0 Pass	0.141 Pass	
7	0.029 Pass	0.113 Pass	0.0 Pass	0.141 Pass	
8	0.012 Pass	0.113 Pass	0.0 Pass	0.143 Pass	
9	0.009 Pass	0.108 Pass	0.0 Pass	0.142 Pass	
10	0.031 Pass	0.118 Pass	0.0 Pass	0.141 Pass	
11	0.034 Pass	0.116 Pass	0.0 Pass	0.142 Pass	
12	0.021 Pass	0.103 Pass	0.0 Pass	0.141 Pass	
Result	Pass	Pass	Pass	Pass	0.141 Pass

100%

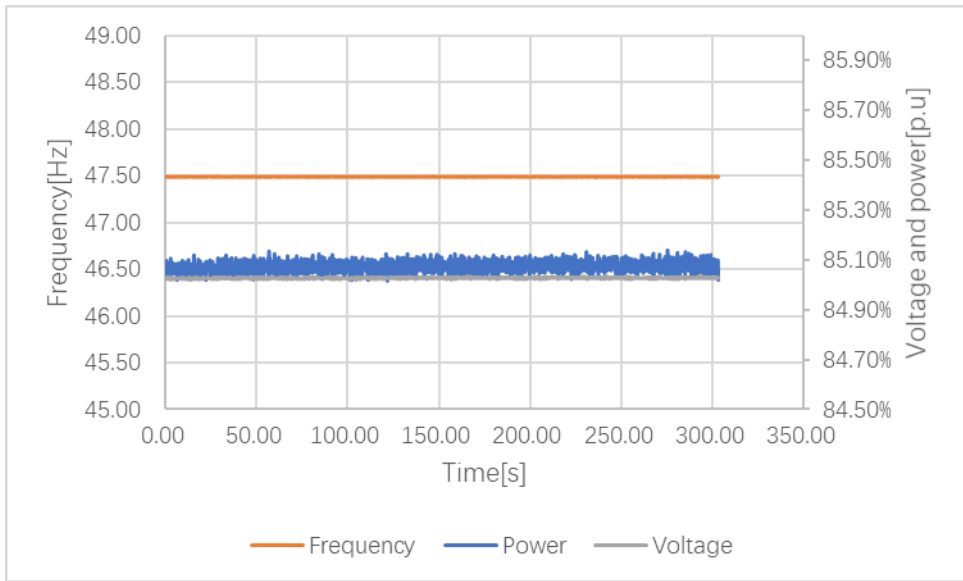
Count: 12/12 Complete
Interval: 00:00s/10:00s

Element: 1
Volt Range: 600 V/50Hz
Un (U1): 230.841V
Freq (U1): 50.000Hz
Dmin: 0.10%

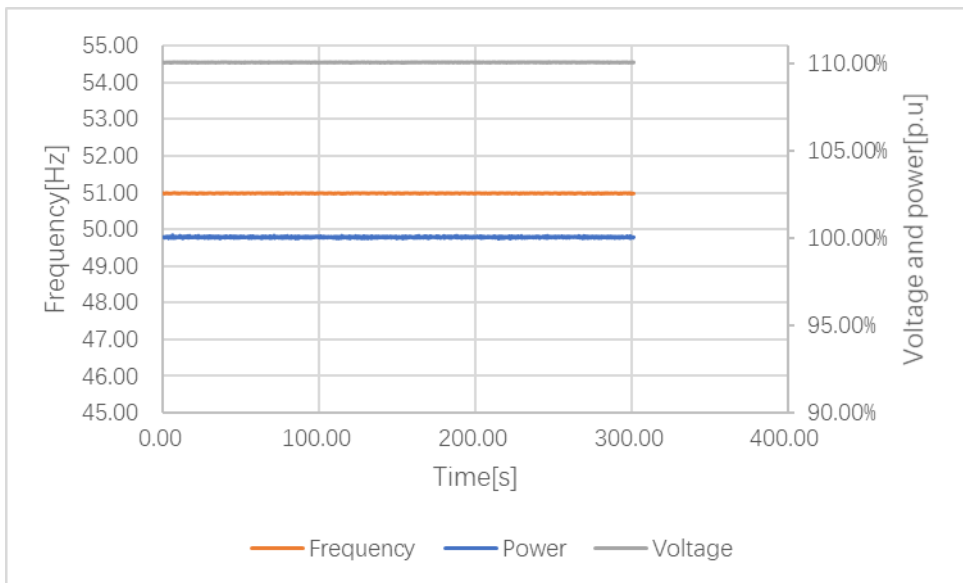
Limit	dc[%]	dmax[%]	d(t)[ms]	Pst	Plt
3.30		4.00	500	1.00	0.65
			3.30%		N:12
No. 1	0.000 Pass	0.000 Pass	0.0 Pass	0.052 Pass	
2	0.000 Pass	0.000 Pass	0.0 Pass	0.053 Pass	
3	0.000 Pass	0.000 Pass	0.0 Pass	0.054 Pass	
4	0.000 Pass	0.000 Pass	0.0 Pass	0.055 Pass	
5	0.000 Pass	0.000 Pass	0.0 Pass	0.054 Pass	
6	0.013 Pass	0.104 Pass	0.0 Pass	0.055 Pass	
7	0.000 Pass	0.000 Pass	0.0 Pass	0.054 Pass	
8	0.000 Pass	0.000 Pass	0.0 Pass	0.052 Pass	
9	0.000 Pass	0.000 Pass	0.0 Pass	0.051 Pass	
10	0.000 Pass	0.000 Pass	0.0 Pass	0.049 Pass	
11	0.000 Pass	0.000 Pass	0.0 Pass	0.049 Pass	
12	0.000 Pass	0.000 Pass	0.0 Pass	0.048 Pass	
Result	Pass	Pass	Pass	Pass	0.052 Pass

Bbis.4	TABLE: Verification of the operating range in voltage and frequency				P	
Model	BD6KTL-RL1					
Operation mode: PV input		P (%P_{SMAX})	f (Hz)	U (%U_n)	Cos φ	
Test 1 U=85%*U_n; f=47,5 Hz; P=100%*P_{SMAX}; Cosφ=1		Measured	85.07	47.50	85.03	0.9999
		Desired	≥85	47.50	85.0	1.000
		Deviation	+0.07	0.00	0.03	-0.0001
Test 2 U=110%*U_n; f=51,5 Hz; P=100%*P_{SMAX}; Cosφ=1		Measured	100.08	51.00	110.06	0.9999
		Desired	95	51.50	110.0	1.000
		Deviation	+5.02	-0.50	0.06	-0.0001

Test 1

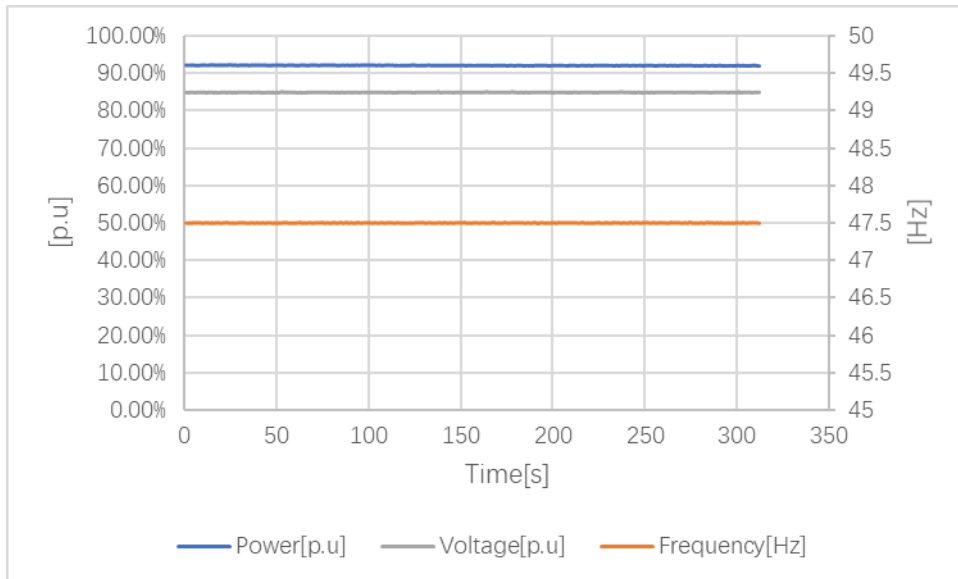


Test 2

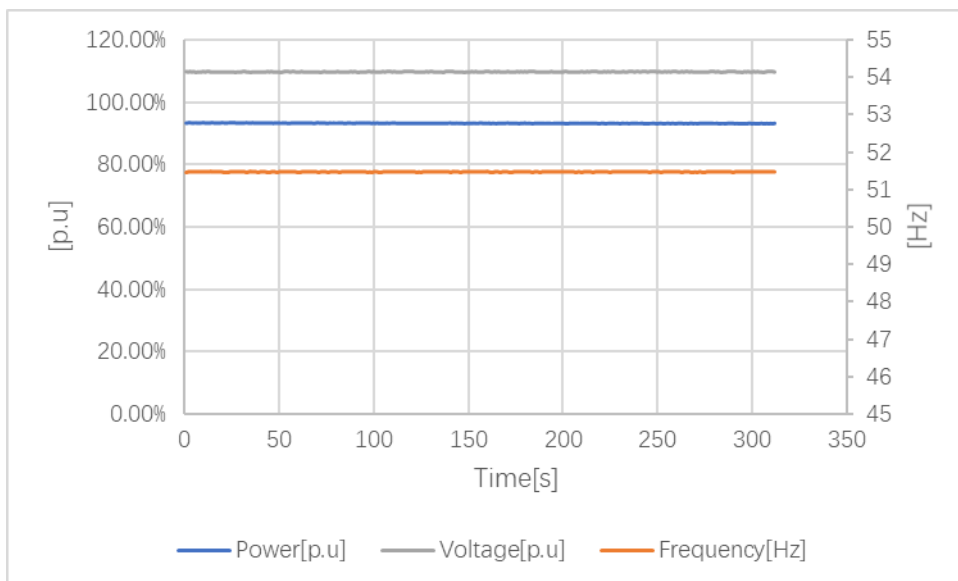


Operation mode: discharging, battery VT48100E-P1		P (%P _{SMAX})	f (Hz)	U (%U _n)	Cos φ
Test 1 U=85%*U_n; f=47,5 Hz; P=100%*P_{SMAX}; Cosφ=1	Measured	92.32	47.50	85.06	0.9967
	Desired	≥85%	47.50	85.0	1.000
	Deviation	+7.32	0.00	0.06	-0.0033
Test 2 U=110%*U_n; f=51,5 Hz; P=100%*P_{SMAX}; Cosφ=1	Measured	93.27	51.50	110.08	0.9989
	Desired	95	51.50	110	1.000
	Deviation	-1.73	0.00	0.08	-0.0011

Test 1

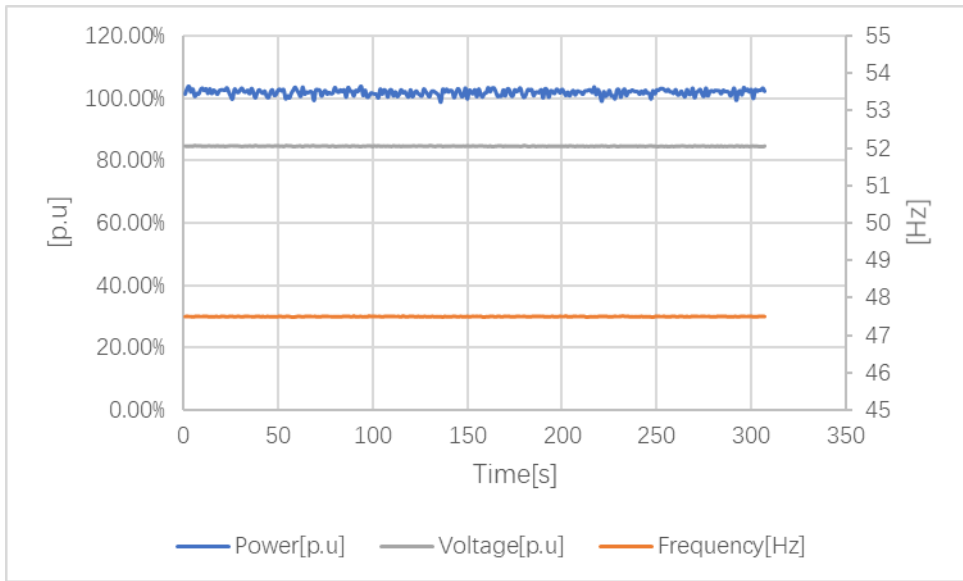


Test 2

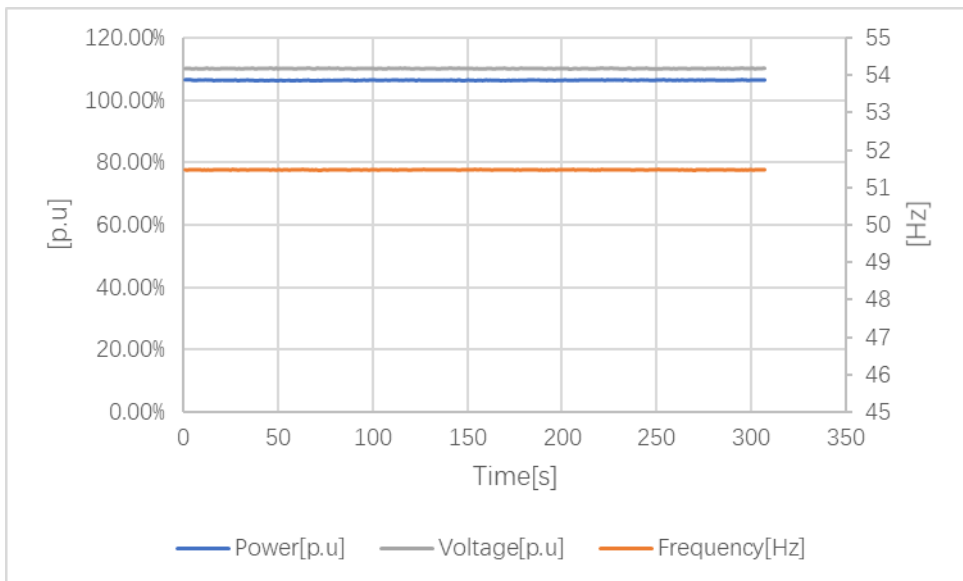


Operation mode: charging, battery VT48100E-P1		P (%P _{C_{MAX}})	f (Hz)	U (%U _n)	Cos φ
Test 3 U=85%*U_n; f=47,5 Hz; P=100%*P_{C_{MAX}}; Cosφ=1	Measured	102.05	47.50	84.96	0.9946
	Desired	≥85%	47.50	85.0	1.000
	Deviation	17.05	0.00	-0.04	-0.0054
Test 4 U=110%*U_n; f=51,5 Hz; P=100%*P_{C_{MAX}}; Cosφ=1	Measured	106.35	51.50	110.15	0.9951
	Desired	95	51.50	110	1.000
	Deviation	11.35	0.00	0.15	-0.0049

Test 3

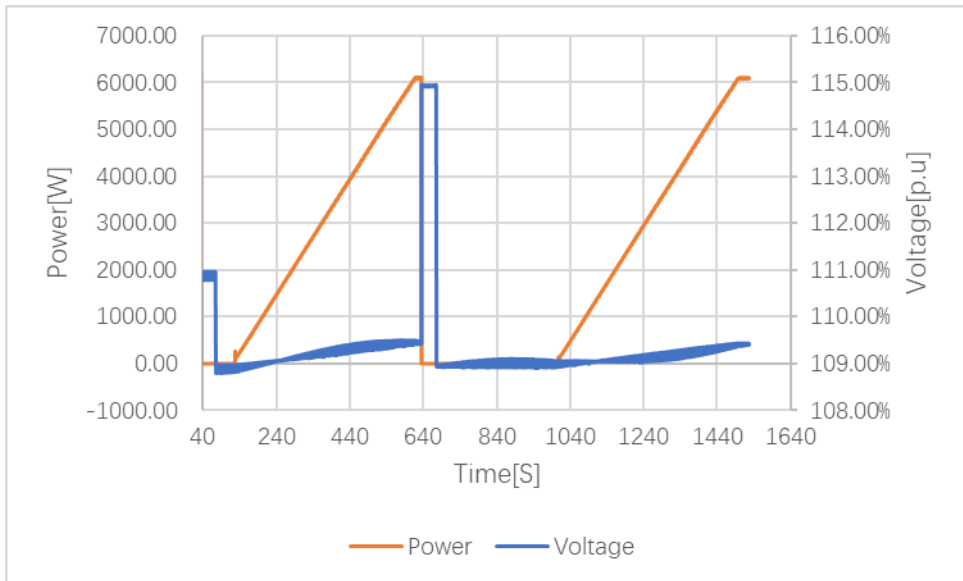


Test 4

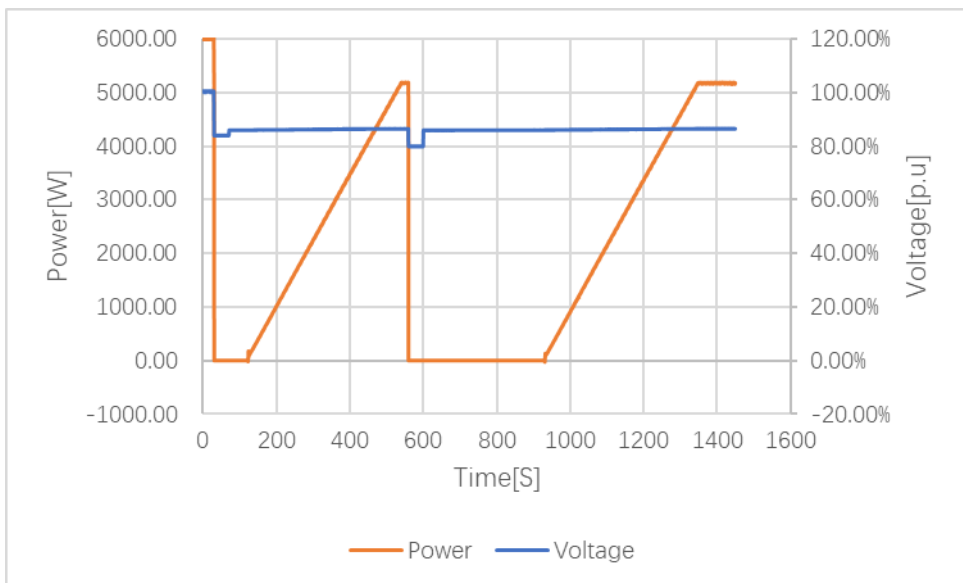


Bbis.5		TABLE: Conditions of connection, reconnection and gradual power supply			P
For connection and reconnection, the gradient must be $<20\% \cdot P_{SMAX}/min$ for the discharge mode after reaching $5\% \cdot P_{SMAX}$, with a maximum power tolerance of $+2.5\% \cdot P_{SMAX}$; and $<20\% \cdot P_{CMAX}/min$ for the discharge mode after reaching $5\% \cdot P_{CMAX}$, with a maximum power tolerance of $-2.5\% \cdot P_{CMAX}$.					
Model		BD6KTL-RL1 tested with PV input			
No connection in less than 30 sec		Connection after 30 sec		Rising curve of 20% P_{SMAX}/min	
$U > 110\% U_n$	Yes	$85\% < U < 110\% U_n$	Yes (51.5s)	12.43% P_{SMAX}/min	
$U < 85\% U_n$	Yes	$85\% < U < 110\% U_n$	Yes (51.8s)	12.42% P_{SMAX}/min	
$f > 50.10\text{ Hz}$	Yes	$49,90 < f < 50.10\text{ Hz}$	Yes (103.3s)	12.31% P_{SMAX}/min	
$f < 49.90\text{ Hz}$	Yes	$49,90 < f < 50.10\text{ Hz}$	Yes (56.3s)	12.35% P_{SMAX}/min	
Disconnection		Connection after 300 sec		Rising curve of 20% P_{SMAX}/min	
$U > 110\% U_n$	Yes	$85\% < U < 110\% U_n$	Yes (330.5s)	12.43% P_{SMAX}/min	
$U < 85\% U_n$	Yes	$85\% < U < 110\% U_n$	Yes (330.5s)	12.36% P_{SMAX}/min	
$f > 51.50\text{ Hz}$	Yes	$49,90 < f < 50.10\text{ Hz}$	Yes (336.5s)	12.36% P_{SMAX}/min	
$f < 47.50\text{ Hz}$	Yes	$49,90 < f < 50.10\text{ Hz}$	Yes (330.4s)	12.32% P_{SMAX}/min	

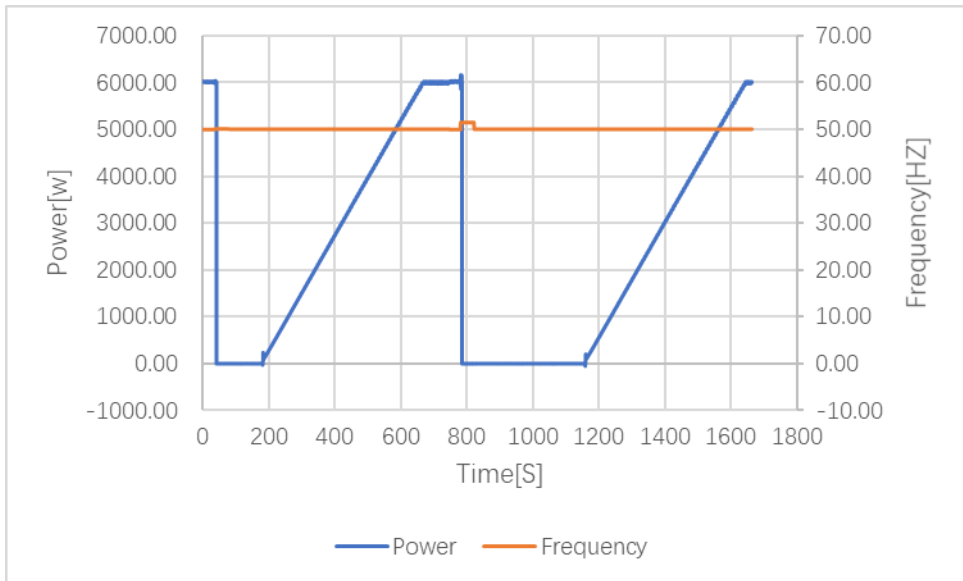
Overvoltage conditions



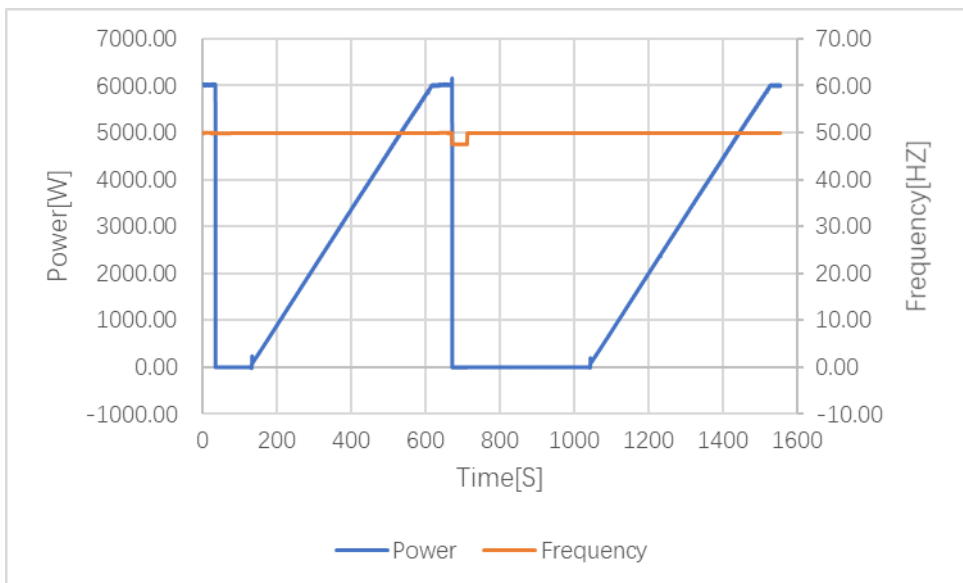
Undervoltage conditions



Overfrequency conditions

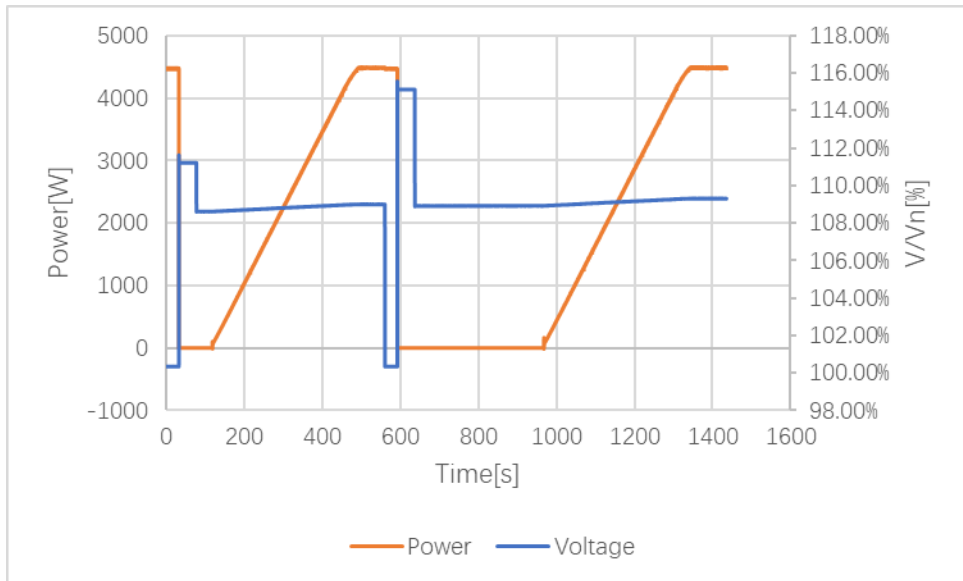


Underfrequency conditions

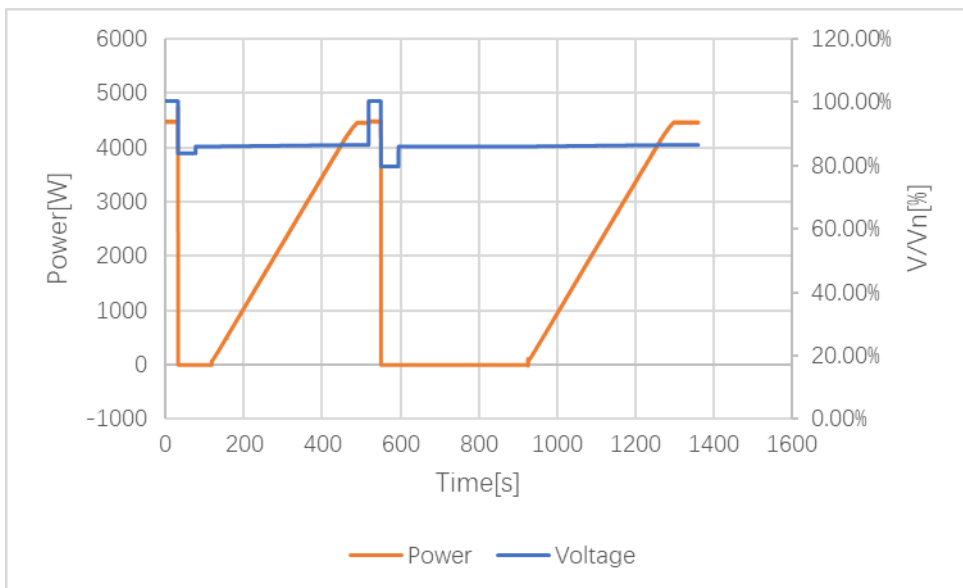


Bbis.5		TABLE: Conditions of connection, reconnection and gradual power supply			P
Model		BD6KTL-RL1 tested with battery VT48100E-P1, discharging			
No connection in less than 30 sec		Connection after 30 sec		Rising curve of 20%P _S MAX/min	
U > 110% Un	Yes	85% < U < 110 % Un	Yes (39.2s)	15.13%P _S MAX /min	
U < 85% Un	Yes	85% < U < 110 % Un	Yes (40.8s)	15.16%P _S MAX /min	
f > 50.10 Hz	Yes	49,90 < f < 50.10 Hz	Yes (42.9s)	15.15%P _S MAX /min	
f < 49.90 Hz	Yes	49,90 < f < 50.10 Hz	Yes (44.0)	15.13%P _S MAX /min	
Disconnection		Connection after 300 sec		Rising curve of 20% P _S MAX/min	
U > 110% Un	Yes	85% < U < 110 % Un	Yes (329.8s)	15.12 %P _S MAX/min	
U < 85% Un	Yes	85% < U < 110 % Un	Yes (325.0s)	15.10%P _S MAX /min	
f > 51.50 Hz	Yes	49,90 < f < 50.10 Hz	Yes (329.8s)	15.12%P _S MAX /min	
f < 47.50 Hz	Yes	49,90 < f < 50.10 Hz	Yes (330.0s)	15.09%P _S MAX /min	

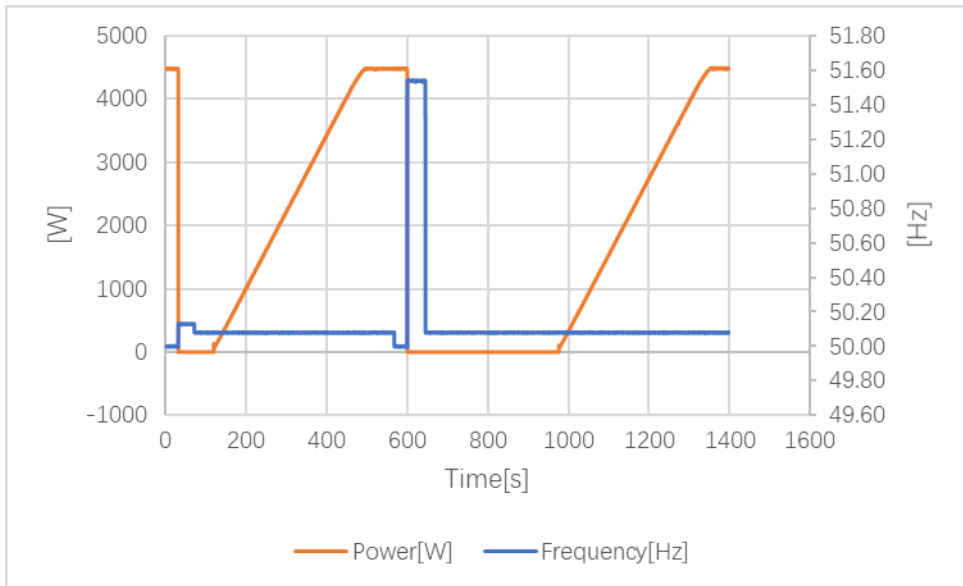
Overvoltage conditions



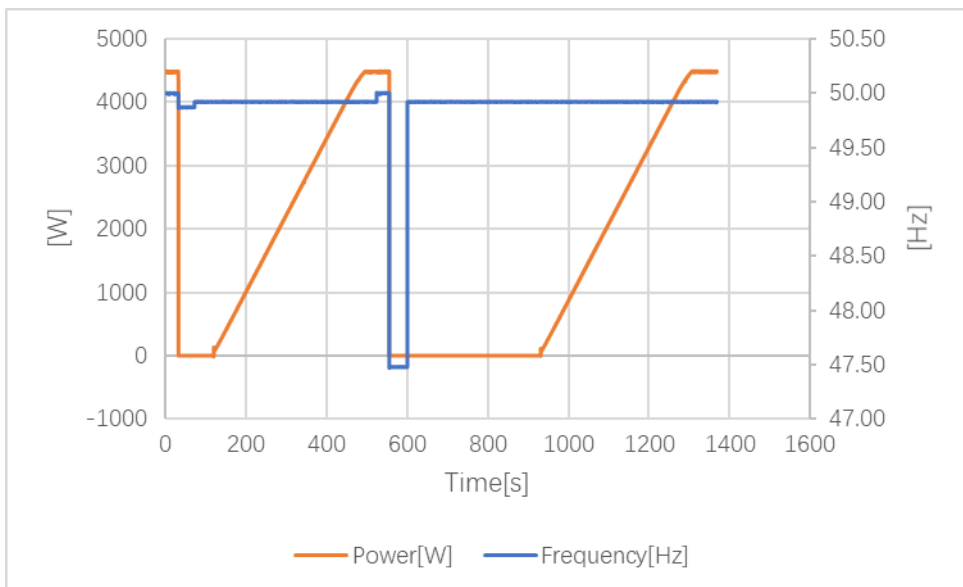
Undervoltage conditions



Overfrequency conditions

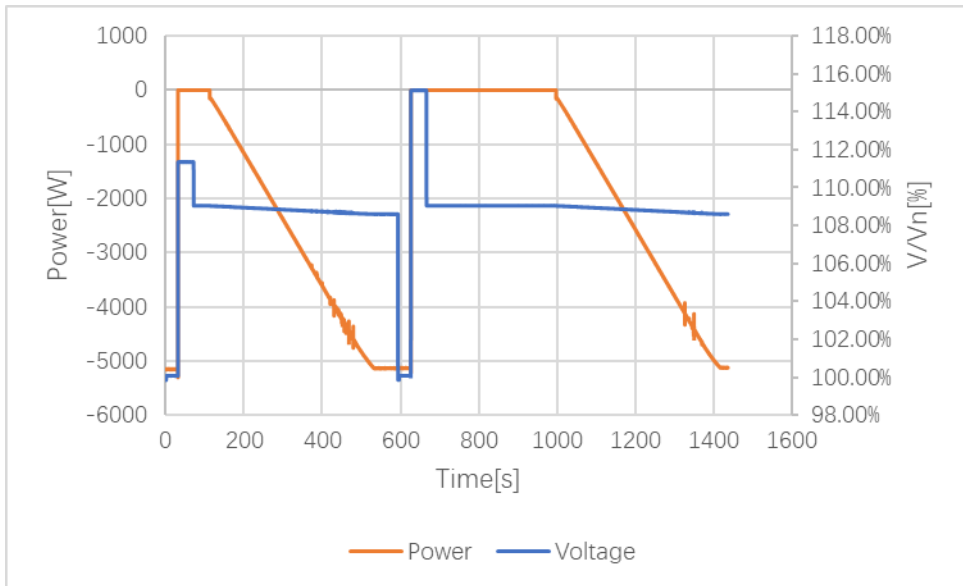


Underfrequency conditions

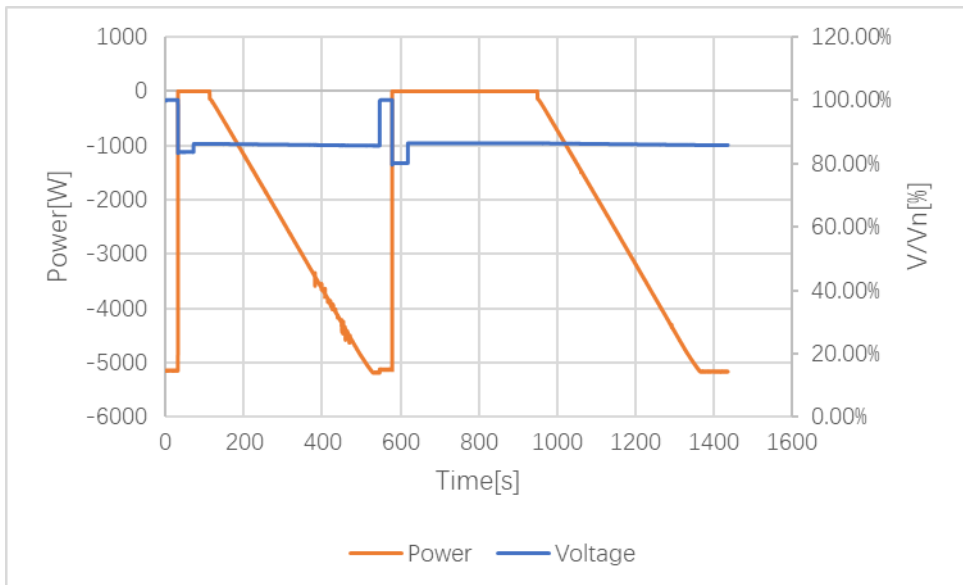


Bbis.5		TABLE: Conditions of connection, reconnection and gradual power supply			P
Model		BD6KTL-RL1 tested with battery VT48100E-P1, charging			
No connection in less than 30 sec		Connection after 30 sec		Rising curve of 20%P _C MAX/min	
U > 110% Un	Yes	85% < U < 110 % Un	Yes (41.0s)	15.28%P _C MAX /min	
U < 85% Un	Yes	85% < U < 110 % Un	Yes (41.2s)	15.44%P _C MAX /min	
f > 50.10 Hz	Yes	49,90 < f < 50.10 Hz	Yes (37.2s)	15.18%P _C MAX /min	
f < 49.90 Hz	Yes	49,90 < f < 50.10 Hz	Yes (48.4s)	15.31%P _C MAX /min	
Disconnection		Connection after 300 sec		Rising curve of 20% P _C MAX/min	
U > 110% Un	Yes	85% < U < 110 % Un	Yes (334.0s)	15.28%P _C MAX/min	
U < 85% Un	Yes	85% < U < 110 % Un	Yes (333.3s)	15.47%P _C MAX /min	
f > 51.50 Hz	Yes	49,90 < f < 50.10 Hz	Yes (332.0s)	15.22%P _C MAX /min	
f < 47.50 Hz	Yes	49,90 < f < 50.10 Hz	Yes (330.0s)	15.38%P _C MAX /min	

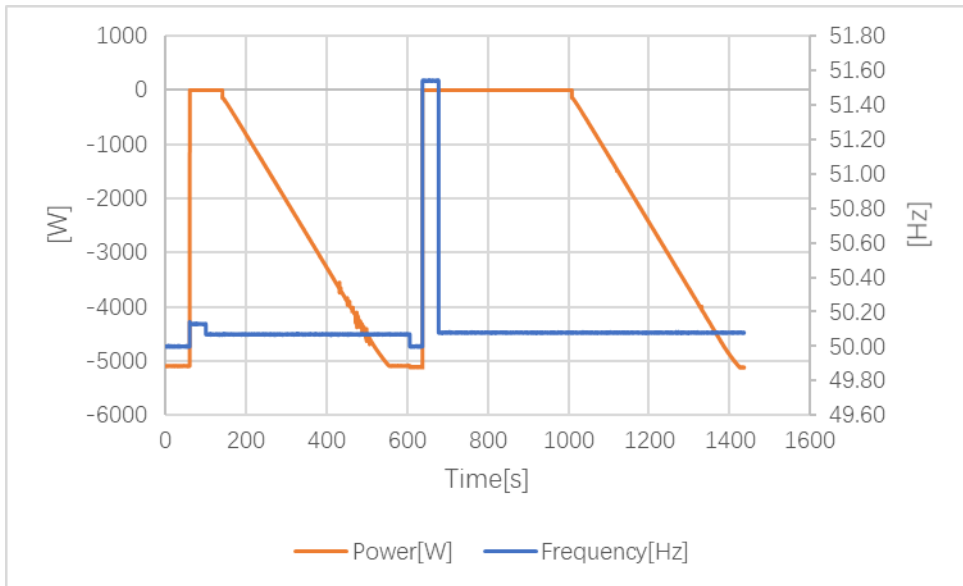
Overvoltage conditions



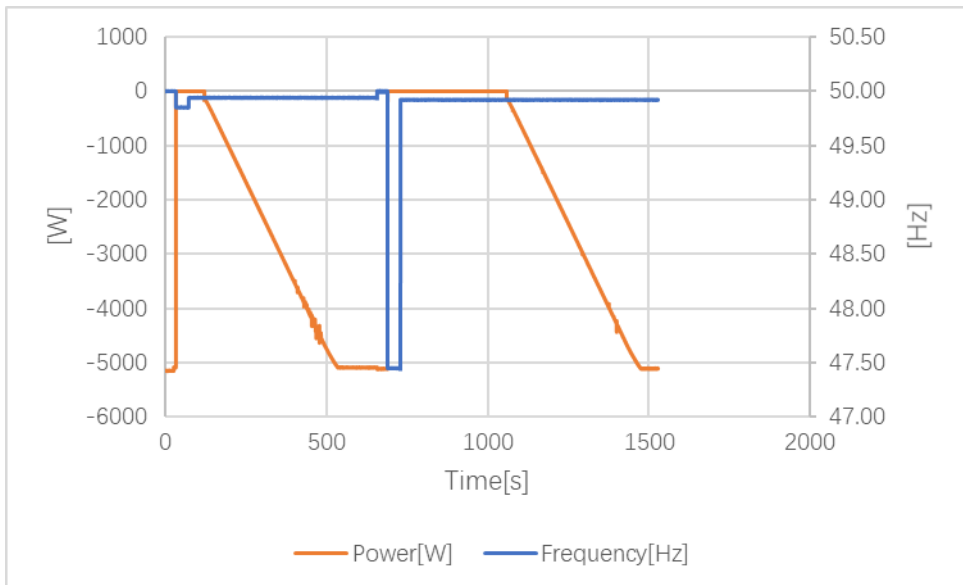
Undervoltage conditions



Overfrequency conditions

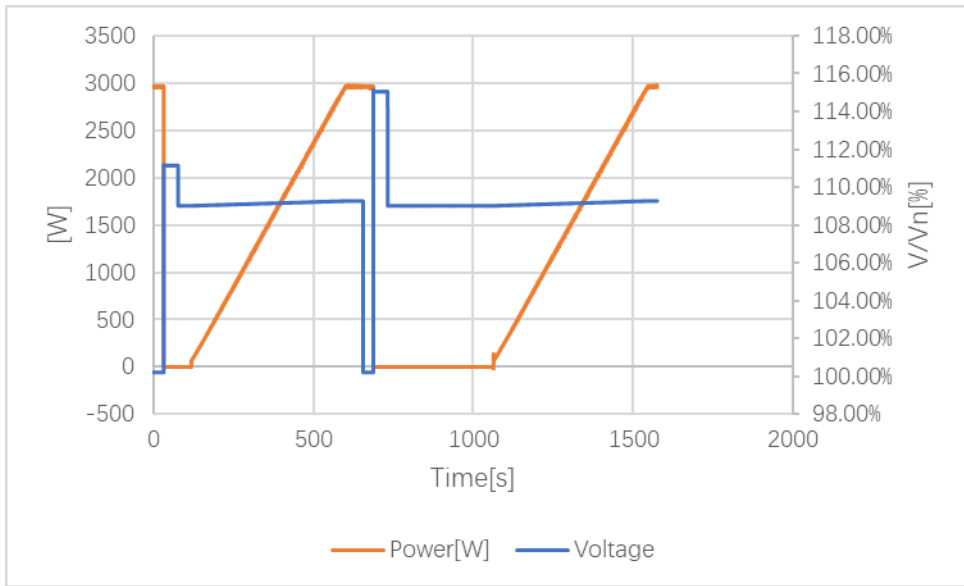


Underfrequency conditions

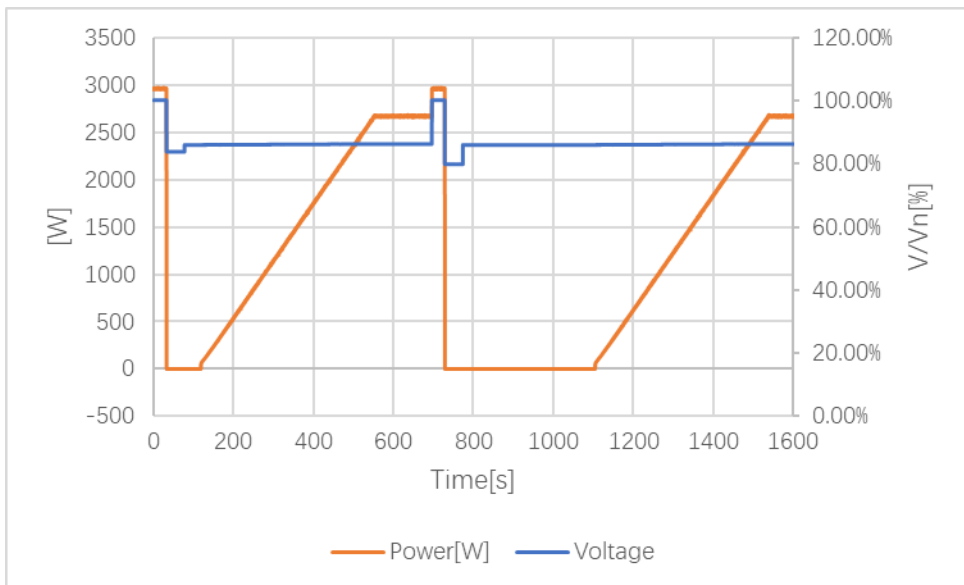


Bbis.5		TABLE: Conditions of connection, reconnection and gradual power supply			P
Model		BD3KTL-RL1 tested with battery VT48100E-P1, discharging			
No connection in less than 30 sec		Connection after 30 sec		Rising curve of 20%P _S MAX/min	
U > 110% Un	Yes	85% < U < 110 % Un	Yes (41.2s)	12.08%P _S MAX /min	
U < 85% Un	Yes	85% < U < 110 % Un	Yes (40.5s)	12.07%P _S MAX /min	
f > 50.10 Hz	Yes	49,90 < f < 50.10 Hz	Yes (47.0s)	12.03%P _S MAX /min	
f < 49.90 Hz	Yes	49,90 < f < 50.10 Hz	Yes (40.6s)	12.04%P _S MAX /min	
Disconnection		Connection after 300 sec		Rising curve of 20% P _S MAX/min	
U > 110% Un	Yes	85% < U < 110 % Un	Yes (334.0s)	12.16 %P _S MAX/min	
U < 85% Un	Yes	85% < U < 110 % Un	Yes (331.0s)	12.07%P _S MAX /min	
f > 51.50 Hz	Yes	49,90 < f < 50.10 Hz	Yes (343.0s)	12.05%P _S MAX /min	
f < 47.50 Hz	Yes	49,90 < f < 50.10 Hz	Yes (330.5s)	11.97%P _S MAX /min	

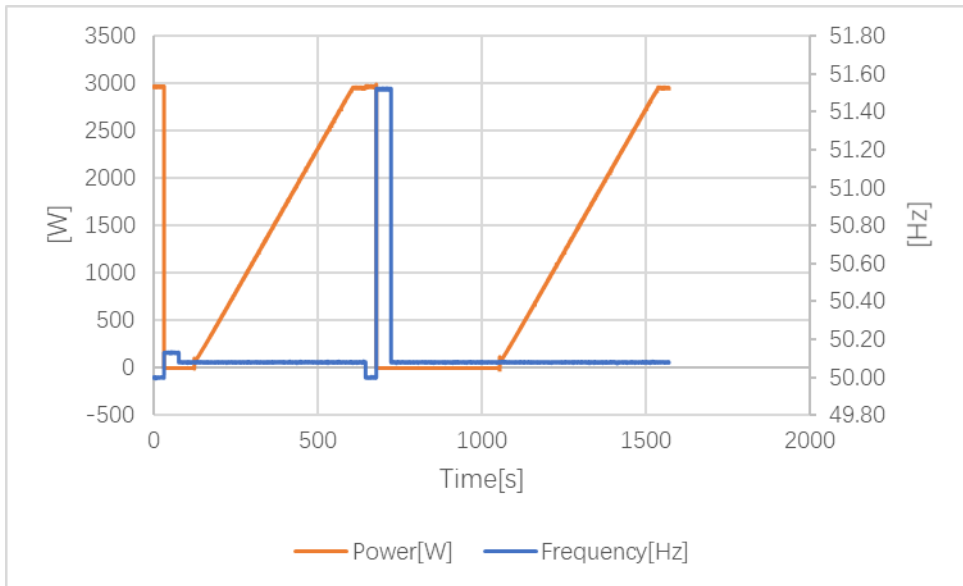
Overvoltage conditions



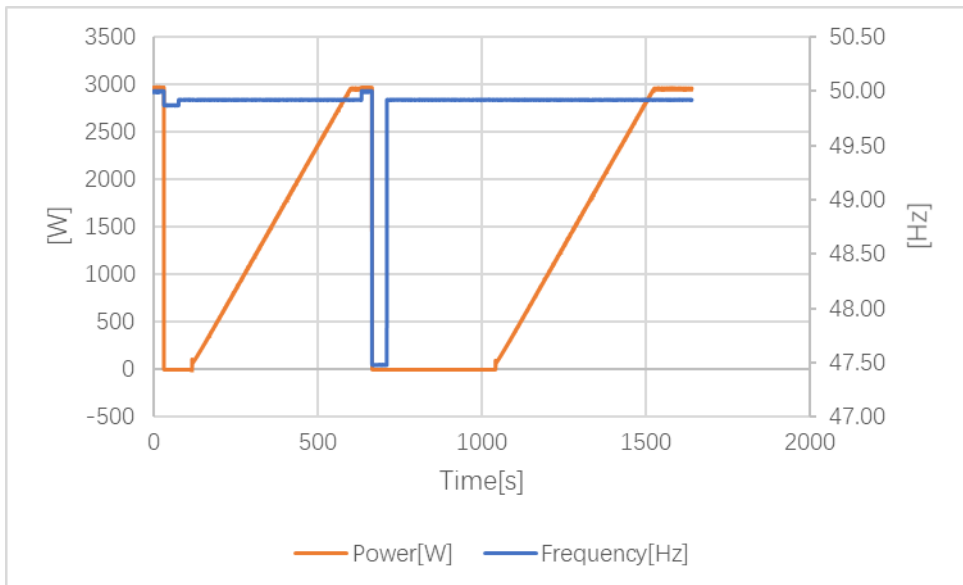
Undervoltage conditions



Overfrequency conditions

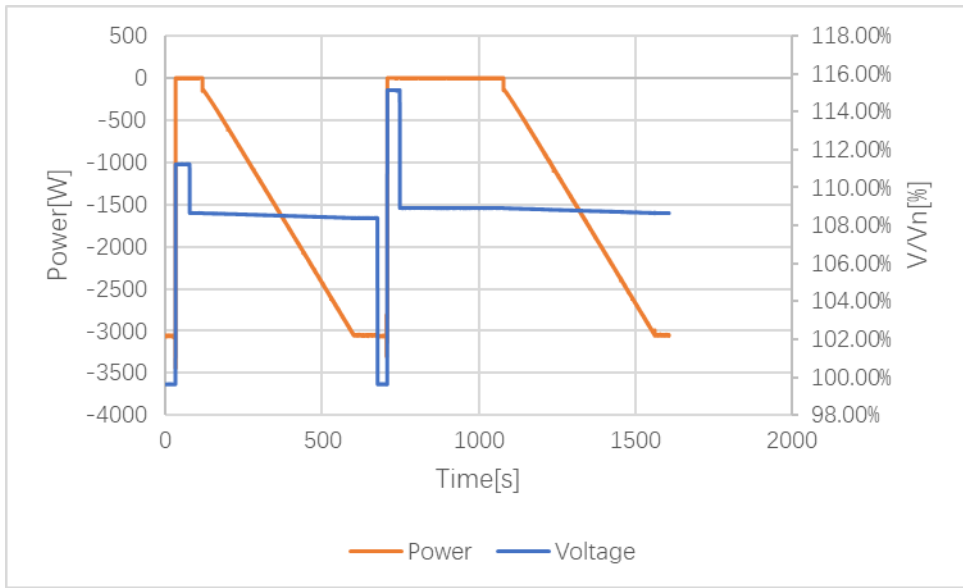


Underfrequency conditions

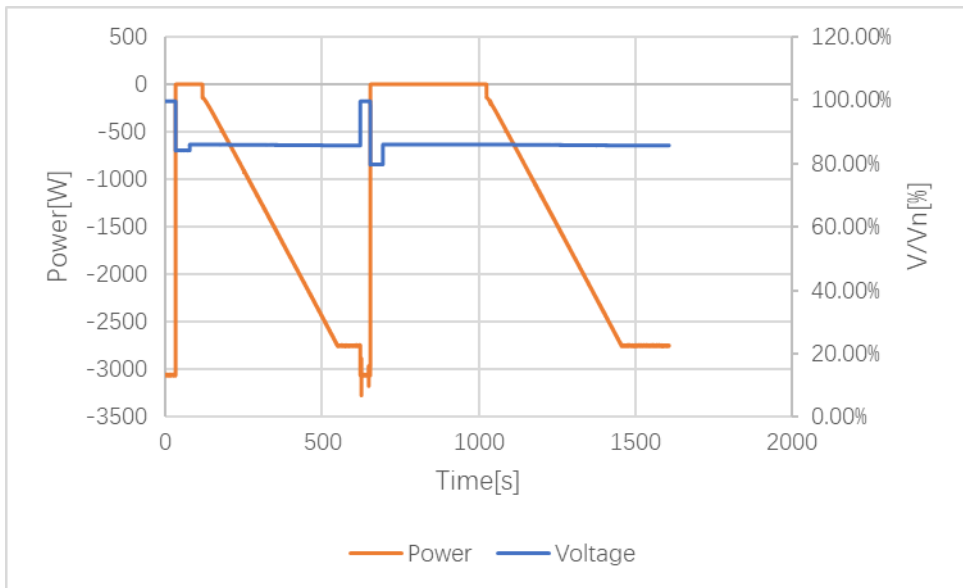


Bbis.5		TABLE: Conditions of connection, reconnection and gradual power supply			P
Model		BD3KTL-RL1 tested with battery VT48100E-P1, charging			
No connection in less than 30 sec		Connection after 30 sec		Rising curve of 20%P _{C_{MAX}} /min	
U > 110% Un	Yes	85% < U < 110 % Un	Yes (39.1s)	12.24%P _{C_{MAX}} /min	
U < 85% Un	Yes	85% < U < 110 % Un	Yes (42.3s)	12.26%P _{C_{MAX}} /min	
f > 50.10 Hz	Yes	49,90 < f < 50.10 Hz	Yes (41.3s)	12.19%P _{C_{MAX}} /min	
f < 49.90 Hz	Yes	49,90 < f < 50.10 Hz	Yes (53.4s)	12.16%P _{C_{MAX}} /min	
Disconnection		Connection after 300 sec		Rising curve of 20% P _{C_{MAX}} /min	
U > 110% Un	Yes	85% < U < 110 % Un	Yes (332.0s)	12.14%P _{C_{MAX}} /min	
U < 85% Un	Yes	85% < U < 110 % Un	Yes (331.0s)	12.25%P _{C_{MAX}} /min	
f > 51.50 Hz	Yes	49,90 < f < 50.10 Hz	Yes (331.1s)	12.12%P _{C_{MAX}} /min	
f < 47.50 Hz	Yes	49,90 < f < 50.10 Hz	Yes (331.2s)	12.18%P _{C_{MAX}} /min	

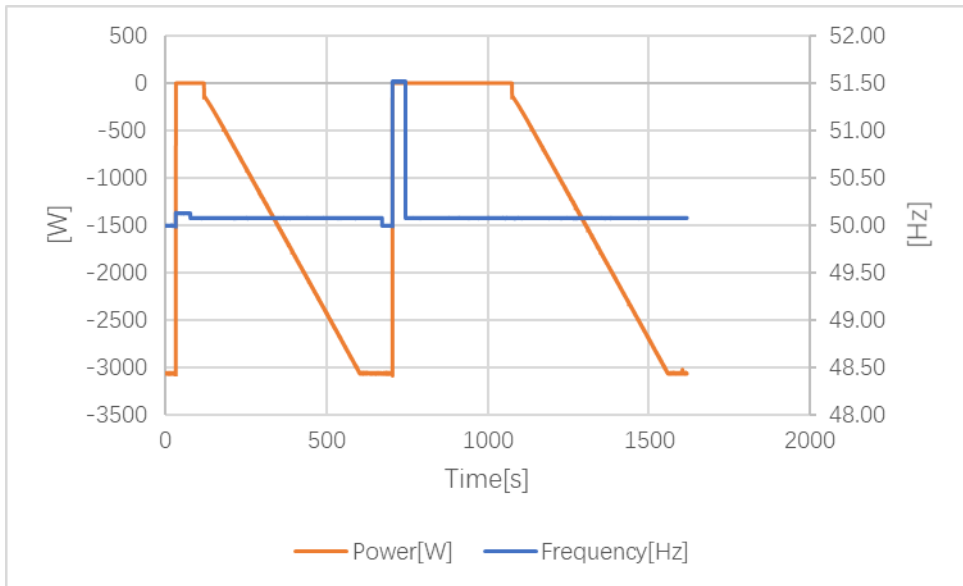
Overvoltage conditions



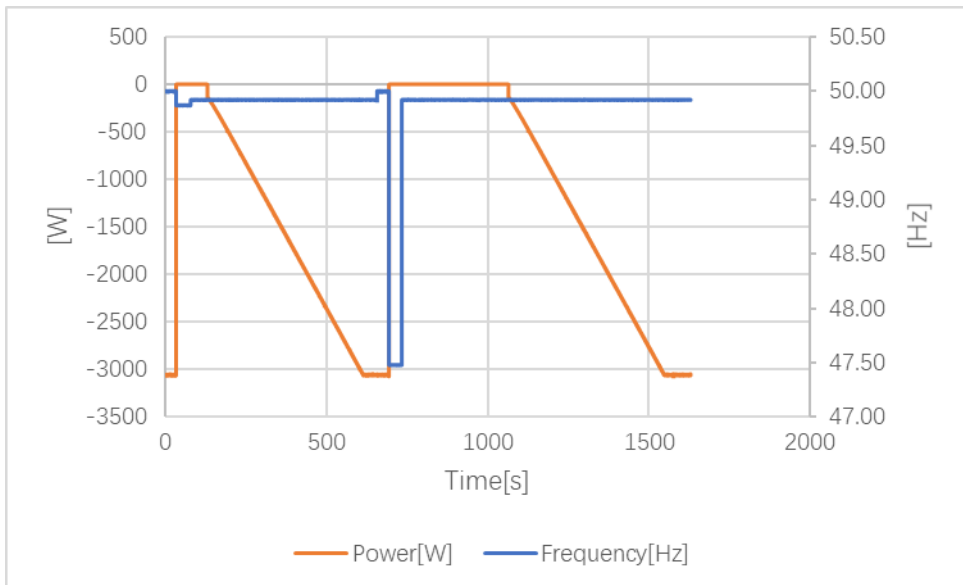
Undervoltage conditions

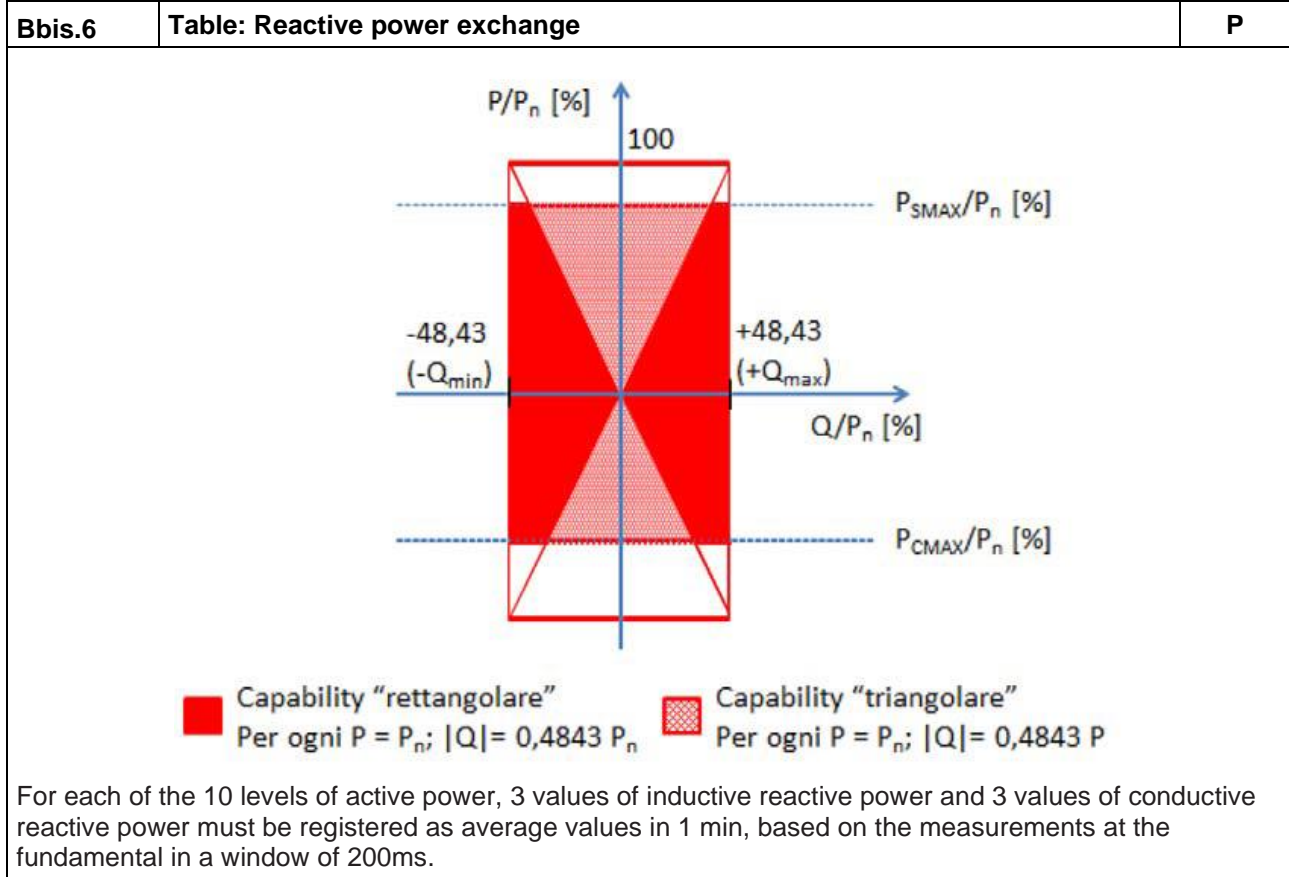


Overfrequency conditions



Underfrequency conditions





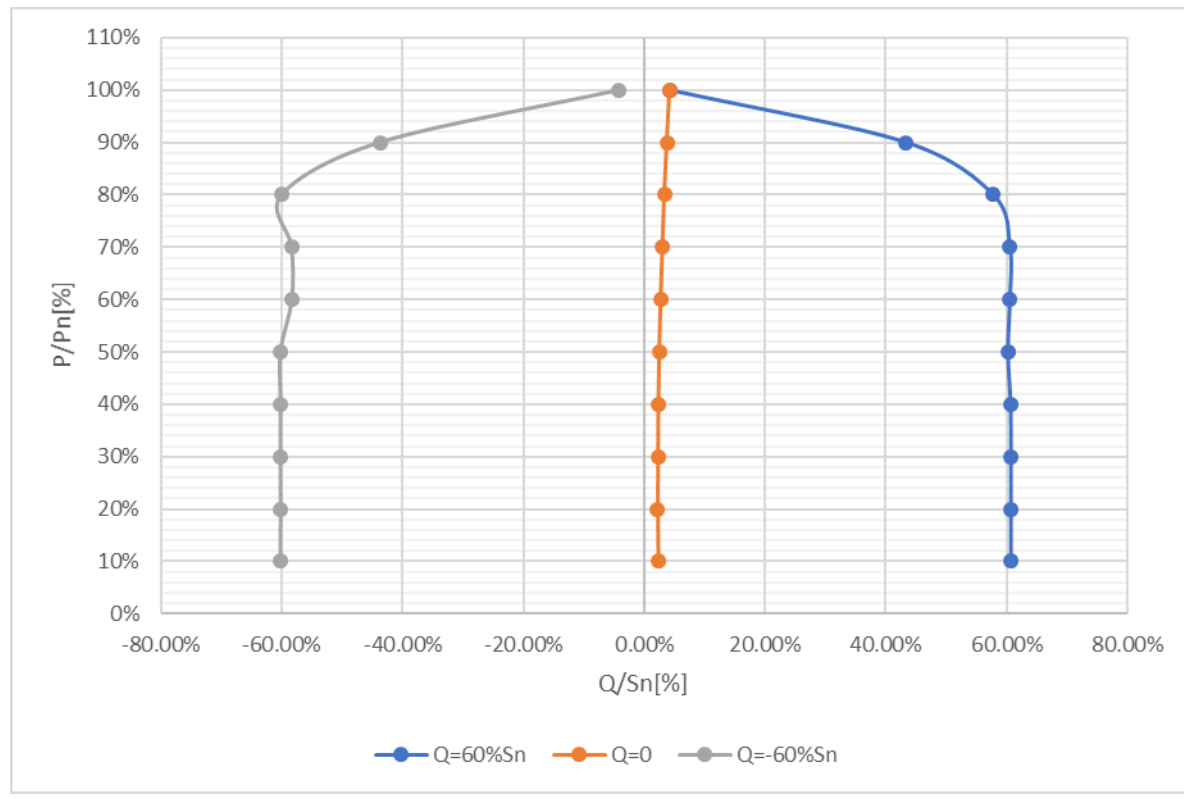
Model: BD6KTL-RL1 tested with PV input							
TABLE_ Reactive power production with set point Q = 0							
Power	Active Power		Reactive Power		DC Power		Power Factor
	W	P. U	VAr	%Sn	W	P. U	cosφ
0% ÷ 10%	611.32	0.102	196.48	3.27	669.92	0.112	0.9520
	611.39	0.102	196.32	3.27	669.84	0.112	0.9521
	611.54	0.102	196.53	3.28	670.19	0.112	0.9520
10% ÷ 20%	1229.29	0.205	191.23	3.19	1301.51	0.217	0.9827
	1229.97	0.205	191.15	3.19	1302.19	0.217	0.9691
	1229.43	0.205	191.93	3.20	1302.06	0.217	0.9615
20% ÷ 30%	1781.48	0.297	189.89	3.16	1867.18	0.311	0.9739
	1781.46	0.297	190.46	3.17	1866.90	0.311	0.9719
	1781.52	0.297	192.01	3.20	1867.52	0.311	0.9767
30% ÷ 40%	2450.00	0.408	191.25	3.19	2554.04	0.426	0.9970
	2449.99	0.408	190.70	3.18	2554.20	0.426	0.9970
	2449.74	0.408	189.08	3.15	2553.92	0.426	0.9970
40% ÷ 50%	2994.71	0.499	194.52	3.24	3115.59	0.519	0.9979
	2994.28	0.499	194.12	3.24	3115.52	0.519	0.9979
	2995.12	0.499	195.88	3.26	3115.82	0.519	0.9979
50% ÷ 60%	3600.25	0.600	197.87	3.30	3740.94	0.623	0.9985
	3600.00	0.600	197.94	3.30	3740.95	0.623	0.9985
	3599.81	0.600	198.04	3.30	3740.54	0.623	0.9985
60% ÷ 70%	4204.17	0.701	211.57	3.53	4367.86	0.728	0.9987
	4203.89	0.701	211.02	3.52	4368.36	0.728	0.9987
	4203.71	0.701	210.79	3.51	4368.49	0.728	0.9987
70% ÷ 80%	4809.09	0.802	230.81	3.85	4999.00	0.833	0.9989
	4808.79	0.801	230.53	3.84	4997.98	0.833	0.9989
	4808.50	0.801	231.22	3.85	4997.90	0.833	0.9988
80% ÷ 90%	5412.32	0.902	256.98	4.28	5628.11	0.938	0.9989
	5412.26	0.902	256.42	4.27	5628.78	0.938	0.9989
	5412.69	0.902	256.24	4.27	5629.07	0.938	0.9989
90% ÷ 100%	6015.65	1.003	-257.92	-4.30	6260.59	1.043	0.9989
	6015.60	1.003	-252.56	-4.21	6259.94	1.043	0.9989
	6015.31	1.003	-224.49	-3.74	6260.34	1.043	0.9989

TABLE_ Reactive power production with set point Q = +Qmax							
Power	Active Power		Reactive Power		DC Power		Power Factor
	W	P. U	VAr	%Sn	W	P. U	cosφ
0% ÷ 10%	633.56	0.106	3602.31	60.04	761.32	0.127	0.1631
	633.75	0.106	3603.85	60.06	761.78	0.127	0.1632
	633.57	0.106	3603.08	60.05	761.34	0.127	0.1632
10% ÷ 20%	1245.65	0.208	3584.79	59.75	1381.36	0.230	0.3105
	1246.36	0.208	3583.65	59.73	1381.92	0.230	0.3107
	1246.42	0.208	3585.03	59.75	1382.38	0.230	0.3107
20% ÷ 30%	1857.77	0.310	3568.24	59.47	2004.38	0.334	0.4396
	1858.10	0.310	3567.99	59.47	2004.53	0.334	0.4397
	1857.94	0.310	3566.73	59.45	2003.98	0.334	0.4397
30% ÷ 40%	2469.00	0.412	3548.27	59.14	2628.00	0.438	0.5471
	2469.37	0.412	3549.61	59.16	2629.46	0.438	0.5472
	2469.79	0.412	3548.52	59.14	2630.27	0.438	0.5473
40% ÷ 50%	3080.20	0.513	3530.56	58.84	3255.83	0.543	0.6339
	3079.90	0.513	3532.85	58.88	3255.18	0.543	0.6337
	3079.94	0.513	3531.28	58.85	3255.57	0.543	0.6337
50% ÷ 60%	3688.77	0.615	3533.06	58.88	3883.23	0.647	0.7022
	3689.04	0.615	3531.65	58.86	3883.88	0.647	0.7023
	3689.35	0.615	3531.39	58.86	3884.11	0.647	0.7023
60% ÷ 70%	4297.82	0.716	3531.54	58.86	4513.76	0.752	0.7562
	4297.81	0.716	3532.44	58.87	4514.02	0.752	0.7561
	4297.87	0.716	3531.65	58.86	4513.89	0.752	0.7560
70% ÷ 80%	4906.93	0.818	3530.76	58.85	5146.97	0.858	0.7984
	4907.27	0.818	3531.28	58.85	5146.35	0.858	0.7984
	4897.07	0.816	3531.80	58.86	5135.28	0.856	0.7984
80% ÷ 90%	4857.82	0.810	3532.70	58.88	5094.86	0.849	0.7983
	4857.97	0.810	3532.38	58.87	5094.71	0.849	0.7983
	4858.13	0.810	3531.32	58.86	5094.44	0.849	0.7983
90%÷100%	4858.28	0.810	3533.11	58.89	5094.23	0.849	0.7982
	4858.44	0.810	3531.30	58.86	5094.57	0.849	0.7983
	4857.87	0.810	3530.83	58.85	5094.27	0.849	0.7982

TABLE_ Reactive power production with set point Q = -Qmax							
Power	Active Power		Reactive Power		DC Power		Power Factor
	W	P. U	VAr	%Sn	W	P. U	cosφ
0% ÷ 10%	437.64	0.073	-3552.99	-59.22	563.66	0.094	0.1244
	437.32	0.073	-3552.99	-59.22	563.55	0.094	0.1243
	436.83	0.073	-3552.76	-59.21	563.15	0.094	0.1242
10% ÷ 20%	1039.17	0.173	-3552.25	-59.20	1173.07	0.196	0.2844
	1038.36	0.173	-3553.30	-59.22	1171.97	0.195	0.2842
	1038.58	0.173	-3553.34	-59.22	1172.38	0.195	0.2843
20% ÷ 30%	1639.47	0.273	-3552.98	-59.22	1783.61	0.297	0.4225
	1639.64	0.273	-3552.56	-59.21	1783.59	0.297	0.4226
	1638.56	0.273	-3553.86	-59.23	1782.51	0.297	0.4224
30% ÷ 40%	2236.67	0.373	-3553.56	-59.23	2398.21	0.400	0.5348
	2236.66	0.373	-3553.71	-59.23	2397.05	0.400	0.5348
	2236.92	0.373	-3554.03	-59.23	2396.55	0.399	0.5349
40% ÷ 50%	2833.30	0.472	-3555.15	-59.25	3005.79	0.501	0.6236
	2834.71	0.472	-3554.20	-59.24	3007.19	0.501	0.6238
	2833.86	0.472	-3553.40	-59.22	3008.17	0.501	0.6236
50% ÷ 60%	3428.98	0.571	-3554.19	-59.24	3618.21	0.603	0.6925
	3430.00	0.572	-3554.51	-59.24	3620.10	0.603	0.6926
	3428.68	0.571	-3553.84	-59.23	3618.43	0.603	0.6924
60% ÷ 70%	4024.36	0.671	-3556.56	-59.28	4235.39	0.706	0.7458
	4022.84	0.670	-3554.95	-59.25	4233.41	0.706	0.7457
	4024.27	0.671	-3555.99	-59.27	4234.45	0.706	0.7459
70% ÷ 80%	4619.60	0.770	-3554.62	-59.24	4853.59	0.809	0.7874
	4619.94	0.770	-3557.21	-59.29	4853.99	0.809	0.7874
	4619.77	0.770	-3554.52	-59.24	4853.99	0.809	0.7873
80% ÷ 90%	4620.57	0.770	-3555.32	-59.26	4854.56	0.809	0.7874
	4636.15	0.773	-3556.52	-59.28	4871.64	0.812	0.7872
	4665.40	0.778	-3556.32	-59.27	4902.83	0.817	0.7871
90% ÷ 100%	4665.12	0.778	-3557.21	-59.29	4902.53	0.817	0.7871
	4665.40	0.778	-3555.85	-59.26	4903.07	0.817	0.7871
	4664.96	0.777	-3556.59	-59.28	4902.39	0.817	0.7870

P/Q_Graph

Maximum reactive power adsorbed (Qmin) and produced (Qmax) as a function of the active power fed into the grid.



Model: BD6KTL-RL1 tested with battery VT48100E-P1							
TABLE_ Reactive power production with set point Q = 0							
Power	Active Power		Reactive Power		DC Power		Power Factor
	W	P. U	VAr	%Sn	W	P. U	cosφ
90% ÷ 100% *P _C MAX*	-4809.50	-1.00	222.49	3.71	-4525.10	-0.94	-0.9982
	-4806.50	-1.00	226.23	3.77	-4519.80	-0.94	-0.9981
	-4808.50	-1.00	233.41	3.89	-4523.20	-0.94	-0.9980
80% ÷ 90% *P _C MAX*	-4327.50	-0.90	204.34	3.41	-4078.20	-0.85	-0.9980
	-4329.40	-0.90	199.86	3.33	-4080.70	-0.85	-0.9981
	-4329.80	-0.90	200.53	3.34	-4077.20	-0.85	-0.9981
70% ÷ 80% *P _C MAX*	-3846.20	-0.80	-235.88	-3.93	-3639.80	-0.76	-0.9981
	-3844.10	-0.80	237.10	3.95	-3634.70	-0.76	-0.9981
	-3845.10	-0.80	239.04	3.98	-3637.80	-0.76	-0.9981
60% ÷ 70% *P _C MAX*	-3370.50	-0.70	-201.28	-3.35	-3191.10	-0.66	-0.9982
	-3372.30	-0.70	-212.88	-3.55	-3195.70	-0.67	-0.9980
	-3366.90	-0.70	-204.35	-3.41	-3189.70	-0.66	-0.9982
50% ÷ 60% *P _C MAX*	-2893.00	-0.60	-181.59	-3.03	-2749.60	-0.57	-0.9980
	-2892.10	-0.60	-184.11	-3.07	-2750.50	-0.57	-0.9980
	-2898.50	-0.60	-179.25	-2.99	-2753.50	-0.57	-0.9981
40% ÷ 50% *P _C MAX*	-2430.00	-0.51	-233.36	-3.89	-2311.00	-0.48	-0.9954
	-2427.20	-0.51	-229.61	-3.83	-2313.40	-0.48	-0.9956
	-2425.80	-0.51	-237.97	-3.97	-2308.40	-0.48	-0.9952
30% ÷ 40% *P _C MAX*	-1960.00	-0.41	-233.54	-3.89	-1870.00	-0.39	-0.9743
	-1962.50	-0.41	-223.90	-3.73	-1868.20	-0.39	-0.9754
	-1960.70	-0.41	-227.91	-3.80	-1866.10	-0.39	-0.9749
20% ÷ 30% *P _C MAX*	-1446.10	-0.30	-158.09	-2.63	-1371.90	-0.29	-0.9675
	-1445.40	-0.30	-164.28	-2.74	-1374.70	-0.29	-0.9664
	-1447.10	-0.30	-168.03	-2.80	-1373.30	-0.29	-0.9659
10% ÷ 20% *P _C MAX*	-992.52	-0.21	-129.98	-2.17	-937.96	-0.20	-0.9431
	-994.15	-0.21	-126.94	-2.12	-938.19	-0.20	-0.9442
	-991.64	-0.21	-127.53	-2.13	-936.98	-0.20	-0.9437
0% ÷ 10% *P _C MAX*	-484.91	-0.10	-93.38	-1.56	-443.93	-0.09	-0.9820
	-484.91	-0.10	-94.45	-1.57	-443.14	-0.09	-0.9816
	-486.17	-0.10	-94.93	-1.58	-443.23	-0.09	-0.9815
0% ÷ 10%	461.76	0.10	118.69	1.98	506.47	0.11	0.9685

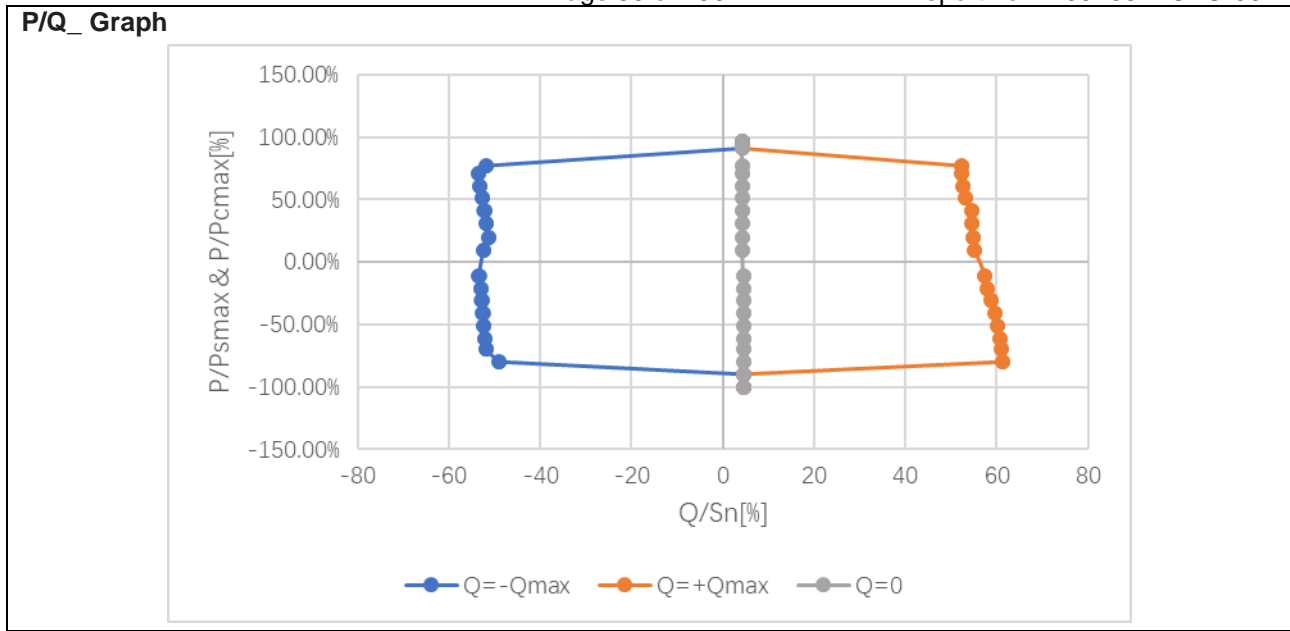
P _S MAX	456.59	0.10	115.83	1.93	504.44	0.11	0.9693
	460.73	0.10	114.99	1.92	509.19	0.11	0.9702
10% ÷ 20% *P _S MAX*	964.10	0.20	128.11	2.14	1027.20	0.21	0.9913
	959.54	0.20	127.44	2.12	1025.00	0.21	0.9913
	952.00	0.20	127.93	2.13	1017.90	0.21	0.9911
20% ÷ 30% *P _S MAX*	1449.70	0.30	230.28	3.84	1539.70	0.32	0.9622
	1449.80	0.30	230.45	3.84	1540.30	0.32	0.9622
	1447.50	0.30	233.24	3.89	1539.90	0.32	0.9616
30% ÷ 40% *P _S MAX*	1932.70	0.40	275.02	4.58	2056.90	0.43	0.9734
	1937.60	0.40	274.34	4.57	2055.90	0.43	0.9736
	1929.30	0.40	270.62	4.51	2057.30	0.43	0.9738
40% ÷ 50% *P _S MAX*	2417.50	0.50	183.44	3.06	2568.80	0.54	0.9971
	2416.10	0.50	180.56	3.01	2571.00	0.54	0.9972
	2417.60	0.50	180.79	3.01	2568.50	0.54	0.9972
50% ÷ 60% *P _S MAX*	2894.50	0.60	206.82	3.45	3085.50	0.64	0.9975
	2892.80	0.60	209.41	3.49	3083.90	0.64	0.9974
	2894.10	0.60	211.51	3.53	3086.90	0.64	0.9973
60% ÷ 70% *P _S MAX*	3367.90	0.70	232.18	3.87	3598.40	0.75	0.9976
	3363.90	0.70	230.02	3.83	3589.90	0.75	0.9977
	3361.70	0.70	226.37	3.77	3594.20	0.75	0.9977
70% ÷ 80% *P _S MAX*	3830.10	0.80	263.84	4.40	4104.80	0.86	0.9976
	3830.40	0.80	259.35	4.32	4102.10	0.85	0.9977
	3830.50	0.80	258.28	4.30	4105.40	0.86	0.9977
80% ÷ 90% *P _S MAX*	4289.10	0.89	-219.67	-3.66	4617.50	0.96	0.9977
	4290.10	0.89	-214.37	-3.57	4615.20	0.96	0.9978
	4289.50	0.89	-205.05	-3.42	4585.20	0.96	0.9980
90% ÷ 100% *P _S MAX*	4453.80	0.93	-228.16	-3.80	4799.70	1.00	0.9978
	4450.50	0.93	-223.58	-3.73	4791.30	1.00	0.9978
	4449.00	0.93	-232.56	-3.88	4797.20	1.00	0.9977

TABLE_ Reactive power production with set point Q = +Qmax							
Power	Active Power		Reactive Power		DC Power		Power Factor
	W	P. U	VAr	%Sn	W	P. U	cosφ
90% ÷ 100% *P _C MAX*	-4807.60	-1.00	184.96	3.08	-4513.70	-0.94	-0.9959
	-4806.40	-1.00	187.79	3.13	-4516.30	-0.94	-0.9959
	-4807.80	-1.00	183.27	3.05	-4516.40	-0.94	-0.9960
80% ÷ 90% *P _C MAX*	-4329.40	-0.90	141.48	2.36	-4074.10	-0.85	-0.9959
	-4322.40	-0.90	145.43	2.42	-4077.30	-0.85	-0.9958
	-4322.00	-0.90	167.59	2.79	-4068.40	-0.85	-0.9954
70% ÷ 80% *P _C MAX*	-3858.90	-0.80	2821.10	47.02	-3622.10	-0.75	-0.8073
	-3858.10	-0.80	2887.40	48.12	-3616.60	-0.75	-0.8006
	-3859.80	-0.80	2949.60	49.16	-3622.10	-0.75	-0.7946
60% ÷ 70% *P _C MAX*	-3391.10	-0.71	3603.20	60.05	-3170.80	-0.66	-0.6803
	-3388.90	-0.71	3597.60	59.96	-3171.50	-0.66	-0.6782
	-3389.40	-0.71	3602.00	60.03	-3166.70	-0.66	-0.6792
50% ÷ 60% *P _C MAX*	-2929.10	-0.61	3636.60	60.61	-2734.80	-0.57	-0.6282
	-2928.40	-0.61	3669.50	61.16	-2741.00	-0.57	-0.6275
	-2925.10	-0.61	3664.60	61.08	-2733.80	-0.57	-0.6286
40% ÷ 50% *P _C MAX*	-2468.40	-0.51	3666.40	61.11	-2304.10	-0.48	-0.5664
	-2467.00	-0.51	3646.40	60.77	-2305.80	-0.48	-0.5662
	-2464.80	-0.51	3669.60	61.16	-2299.90	-0.48	-0.5660
30% ÷ 40% *P _C MAX	-1946.50	-0.41	3697.00	61.62	-1804.00	-0.38	-0.4809
	-1945.80	-0.41	3696.00	61.60	-1805.20	-0.38	-0.4803
	-1943.70	-0.40	3698.80	61.65	-1805.10	-0.38	-0.4803
20% ÷ 30% *P _C MAX	-1418.40	-0.30	3664.70	61.08	-1298.10	-0.27	-0.3742
	-1421.40	-0.30	3667.80	61.13	-1300.90	-0.27	-0.3754
	-1416.80	-0.30	3680.60	61.34	-1298.10	-0.27	-0.3725
10% ÷ 20% *P _C MAX	-1009.00	-0.21	3648.80	60.81	-902.06	-0.19	-0.2776
	-1008.30	-0.21	3645.60	60.76	-903.04	-0.19	-0.2766
	-1010.20	-0.21	3656.80	60.95	-900.92	-0.19	-0.2772
0% ÷ 10% *P _C MAX	-453.03	-0.09	3666.00	61.10	-355.65	-0.07	-0.1294
	-452.76	-0.09	3665.60	61.09	-356.18	-0.07	-0.1296
	-455.88	-0.09	3698.60	61.64	-359.54	-0.07	-0.1301
0% ÷ 10% *P _S MAX	413.06	0.09	3686.70	61.45	517.43	0.11	0.1190
	413.38	0.09	3678.70	61.31	514.69	0.11	0.1185

	408.18	0.09	3683.60	61.39	511.33	0.11	0.1171
10% ÷ 20% *P _S MAX	918.99	0.19	3666.60	61.11	1034.80	0.22	0.2582
	913.03	0.19	3658.40	60.97	1031.40	0.21	0.2572
	913.74	0.19	3659.40	60.99	1031.20	0.21	0.2574
20% ÷ 30% *P _S MAX	1407.90	0.29	3666.50	61.11	1545.50	0.32	0.3805
	1401.20	0.29	3667.30	61.12	1543.20	0.32	0.3804
	1409.20	0.29	3633.70	60.56	1545.20	0.32	0.3823
30% ÷ 40% *P _S MAX	1899.80	0.40	3697.00	61.62	2063.10	0.43	0.4876
	1892.60	0.39	3696.00	61.60	2060.10	0.43	0.4872
	1895.50	0.39	3698.80	61.65	2059.80	0.43	0.4883
40% ÷ 50% *P _S MAX*	2378.50	0.50	3646.00	60.77	2571.30	0.54	0.5768
	2385.00	0.50	3654.40	60.91	2577.00	0.54	0.5781
	2383.30	0.50	3638.70	60.65	2572.60	0.54	0.5777
50% ÷ 60% *P _S MAX*	2850.90	0.59	3664.30	61.07	3081.40	0.64	0.6471
	2853.60	0.59	3669.70	61.16	3078.90	0.64	0.6492
	2856.80	0.60	3666.30	61.11	3083.40	0.64	0.6497
60% ÷ 70% *P _S MAX*	3320.20	0.69	3636.60	60.61	3585.40	0.75	0.7070
	3321.10	0.69	3669.80	61.16	3585.10	0.75	0.7071
	3324.10	0.69	3665.40	61.09	3592.00	0.75	0.7057
70% ÷ 80% *P _S MAX*	3781.70	0.79	3666.90	61.12	4087.30	0.85	0.7504
	3780.60	0.79	3667.80	61.13	4093.10	0.85	0.7528
	3779.70	0.79	3665.30	61.09	4092.00	0.85	0.7527
80% ÷ 90% *P _S MAX*	4293.70	0.89	207.88	3.46	4613.70	0.96	0.9988
	4295.30	0.89	215.99	3.60	4623.40	0.96	0.9987
	4292.40	0.89	212.01	3.53	4611.60	0.96	0.9988
90% ÷ 100% *P _S MAX*	4457.10	0.93	217.53	3.63	4807.40	1.00	0.9988
	4459.20	0.93	219.24	3.65	4802.90	1.00	0.9988
	4458.20	0.93	224.32	3.74	4809.00	1.00	0.9987

TABLE_ Reactive power production with set point Q = -Qmax							
Power	Active Power		Reactive Power		DC Power		Power Factor
	W	P. U	VAr	%Sn	W	P. U	cosφ
90% ÷ 100% *P _C MAX*	-4806.00	-1.00	195.00	3.25	-4514.20	-0.94	-0.9989
	-4807.20	-1.00	191.81	3.20	-4522.20	-0.94	-0.9990
	-4799.90	-1.00	200.31	3.34	-4510.60	-0.94	-0.9988
80% ÷ 90% *P _C MAX*	-4328.60	-0.90	160.50	2.68	-4080.70	-0.85	-0.9987
	-4328.10	-0.90	172.10	2.87	-4076.80	-0.85	-0.9985
	-4329.20	-0.90	162.96	2.72	-4082.80	-0.85	-0.9987
70% ÷ 80% *P _C MAX*	-3876.00	-0.81	-3496.90	-58.28	-3620.10	-0.75	-0.7560
	-3871.50	-0.81	-3507.60	-58.46	-3612.70	-0.75	-0.7550
	-3877.90	-0.81	-3500.30	-58.34	-3621.20	-0.75	-0.7561
60% ÷ 70% *P _C MAX*	-3405.30	-0.71	-3509.60	-58.49	-3186.80	-0.66	-0.7120
	-3406.60	-0.71	-3510.10	-58.50	-3181.10	-0.66	-0.7124
	-3407.90	-0.71	-3501.00	-58.35	-3186.40	-0.66	-0.7107
50% ÷ 60% *P _C MAX*	-2945.10	-0.61	-3506.00	-58.43	-2751.20	-0.57	-0.6571
	-2943.10	-0.61	-3510.40	-58.51	-2747.70	-0.57	-0.6564
	-2941.50	-0.61	-3509.60	-58.49	-2747.50	-0.57	-0.6573
40% ÷ 50% *P _C MAX*	-2478.20	-0.52	-3512.20	-58.54	-2307.20	-0.48	-0.5885
	-2472.50	-0.52	-3498.90	-58.32	-2308.70	-0.48	-0.5895
	-2470.80	-0.51	-3513.60	-58.56	-2307.10	-0.48	-0.5893
30% ÷ 40% *P _C MAX	-2007.60	-0.42	-3501.10	-58.35	-1864.00	-0.39	-0.5082
	-2013.60	-0.42	-3513.20	-58.55	-1870.40	-0.39	-0.5101
	-2020.30	-0.42	-3511.10	-58.52	-1868.50	-0.39	-0.5112
20% ÷ 30% *P _C MAX	-1496.50	-0.31	-3504.50	-58.41	-1371.50	-0.29	-0.4011
	-1502.80	-0.31	-3510.90	-58.52	-1376.00	-0.29	-0.4036
	-1504.50	-0.31	-3504.90	-58.42	-1374.80	-0.29	-0.4032
10% ÷ 20% *P _C MAX	-1044.40	-0.22	-3509.60	-58.49	-932.75	-0.19	-0.2913
	-1051.70	-0.22	-3504.00	-58.40	-938.35	-0.20	-0.2942
	-1050.80	-0.22	-3515.30	-58.59	-935.50	-0.19	-0.2927
0% ÷ 10% *P _C MAX	-543.22	-0.11	-3515.20	-58.59	-439.42	-0.09	-0.1564
	-549.37	-0.11	-3507.80	-58.46	-442.48	-0.09	-0.1582
	-544.19	-0.11	-3511.40	-58.52	-439.50	-0.09	-0.1563
0% ÷ 10% *P _S MAX	395.10	0.08	-3504.70	-58.41	508.03	0.11	0.1137
	398.89	0.08	-3508.90	-58.48	511.54	0.11	0.1146

	401.65	0.08	-3514.10	-58.57	511.64	0.11	0.1152
10% ÷ 20% *P _S MAX	905.16	0.19	-3502.70	-58.38	1030.90	0.21	0.2519
	894.91	0.19	-3500.50	-58.34	1023.70	0.21	0.2495
	903.26	0.19	-3512.20	-58.54	1029.80	0.21	0.2512
20% ÷ 30% *P _S MAX	1403.70	0.29	-3530.40	-58.84	1546.80	0.32	0.3734
	1400.30	0.29	-3540.80	-59.01	1548.20	0.32	0.3717
	1390.60	0.29	-3530.70	-58.85	1537.90	0.32	0.3692
30% ÷ 40% *P _S MAX	1884.70	0.39	-3557.40	-59.29	2057.40	0.43	0.4723
	1884.20	0.39	-3555.20	-59.25	2060.30	0.43	0.4722
	1884.00	0.39	-3564.40	-59.41	2057.60	0.43	0.4716
40% ÷ 50% *P _S MAX*	2370.70	0.49	-3575.40	-59.59	2575.50	0.54	0.5571
	2367.90	0.49	-3581.30	-59.69	2573.60	0.54	0.5559
	2364.60	0.49	-3576.90	-59.62	2571.20	0.54	0.5568
50% ÷ 60% *P _S MAX*	2839.60	0.59	-3602.50	-60.04	3080.70	0.64	0.6228
	2843.10	0.59	-3604.30	-60.07	3078.80	0.64	0.6240
	2840.50	0.59	-3609.40	-60.16	3081.60	0.64	0.6241
60% ÷ 70% *P _S MAX*	3299.00	0.69	-3635.50	-60.59	3582.70	0.75	0.6781
	3296.30	0.69	-3631.60	-60.53	3574.20	0.74	0.6777
	3304.20	0.69	-3646.50	-60.78	3585.80	0.75	0.6783
70% ÷ 80% *P _S MAX*	3757.00	0.78	-3638.60	-60.64	4081.50	0.85	0.7217
	3757.10	0.78	-3630.70	-60.51	4076.80	0.85	0.7215
	3755.70	0.78	-3628.00	-60.47	4078.90	0.85	0.7222
80% ÷ 90% *P _S MAX*	4287.80	0.89	214.94	3.58	4617.10	0.96	0.9987
	4282.80	0.89	209.43	3.49	4609.00	0.96	0.9988
	4292.60	0.89	211.21	3.52	4619.90	0.96	0.9988
90% ÷ 100% *P _S MAX*	4455.80	0.93	220.35	3.67	4807.40	1.00	0.9988
	4449.30	0.93	216.81	3.61	4793.10	1.00	0.9988
	4460.70	0.93	225.10	3.75	4809.10	1.00	0.9987



Model: BD3KTL-RL1 tested with battery VT48100E-P1							
TABLE_ Reactive power production with set point Q = 0							
Power	Active Power		Reactive Power		DC Power		Power Factor
	W	P. U	VAr	%Sn	W	P. U	cosφ
90% ÷ 100% *P _C MAX	-3013.00	-1.00	134.86	4.00	-2855.70	-0.95	-0.9963
	-3013.40	-1.00	149.89	5.00	-2855.80	-0.95	-0.9962
	-3009.30	-1.00	127.33	4.00	-2853.60	-0.95	-0.9962
80% ÷ 90% *P _C MAX	-2706.20	-0.90	133.55	4.00	-2569.60	-0.86	-0.9932
	-2705.80	-0.90	130.69	4.00	-2569.60	-0.86	-0.9929
	-2712.50	-0.90	143.81	5.00	-2576.20	-0.86	-0.9932
70% ÷ 80% *P _C MAX	-2397.50	-0.80	146.57	5.00	-2281.80	-0.76	-0.9924
	-2397.30	-0.80	129.22	4.00	-2282.10	-0.76	-0.9924
	-2394.40	-0.80	134.83	4.00	-2278.30	-0.76	-0.9920
60% ÷ 70% *P _C MAX	-2087.50	-0.70	130.95	4.00	-1989.00	-0.66	-0.9906
	-2087.90	-0.70	138.98	5.00	-1988.10	-0.66	-0.9907
	-2088.30	-0.70	134.80	4.00	-1988.80	-0.66	-0.9907
50% ÷ 60% *P _C MAX	-1831.40	-0.61	130.94	4.00	-1744.70	-0.58	-0.9655
	-1830.40	-0.61	133.09	4.00	-1744.00	-0.58	-0.9659
	-1827.70	-0.61	135.81	5.00	-1746.40	-0.58	-0.9660
40% ÷ 50% *P _C MAX	-1526.20	-0.51	133.66	4.00	-1455.00	-0.49	-0.9591
	-1525.20	-0.51	132.23	4.00	-1455.90	-0.49	-0.9600
	-1525.20	-0.51	147.01	5.00	-1455.70	-0.49	-0.9589
30% ÷ 40% *P _C MAX	-1218.70	-0.41	136.64	5.00	-1161.80	-0.39	-0.9471
	-1219.40	-0.41	140.29	5.00	-1162.60	-0.39	-0.9476
	-1218.60	-0.41	129.05	4.00	-1165.00	-0.39	-0.9477
20% ÷ 30% *P _C MAX	-924.53	-0.31	134.77	4.00	-879.30	-0.29	-0.9210
	-921.69	-0.31	133.54	4.00	-876.41	-0.29	-0.9223
	-919.07	-0.31	129.80	4.00	-876.85	-0.29	-0.9214
10% ÷ 20% *P _C MAX	-618.56	-0.21	135.20	5.00	-584.31	-0.19	-0.9488
	-619.52	-0.21	129.82	4.00	-585.37	-0.20	-0.9457
	-623.20	-0.21	131.49	4.00	-588.42	-0.20	-0.9470
0% ÷ 10% *P _C MAX	-313.31	-0.10	130.46	4.00	-293.91	-0.10	-0.8554
	-314.35	-0.10	140.90	5.00	-287.41	-0.10	-0.8565
	-313.01	-0.10	132.88	4.00	-290.50	-0.10	-0.8543

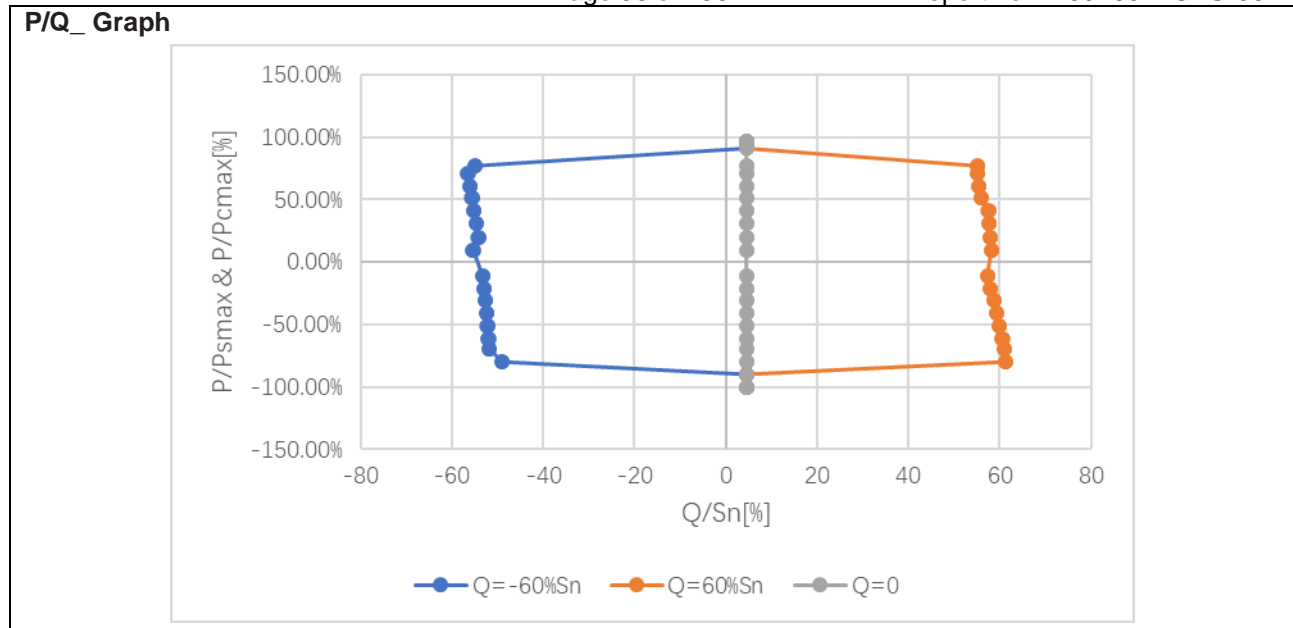
0% ÷ 10% *P _S MAX	249.50	0.08	137.06	5.00	273.16	0.09	0.8157
	246.73	0.08	139.61	5.00	272.84	0.09	0.8103
	250.02	0.08	133.60	4.00	273.48	0.09	0.8102
10% ÷ 20% *P _S MAX	584.89	0.19	125.79	4.00	624.47	0.21	0.9564
	583.86	0.19	136.67	5.00	624.11	0.21	0.9560
	591.13	0.20	129.86	4.00	627.71	0.21	0.9549
20% ÷ 30% *P _S MAX	900.13	0.30	128.18	4.00	952.90	0.32	0.9630
	897.51	0.30	129.64	4.00	951.00	0.32	0.9623
	896.75	0.30	132.29	4.00	951.63	0.32	0.9634
30% ÷ 40% *P _S MAX	1204.30	0.40	133.63	4.00	1273.10	0.42	0.9491
	1203.30	0.40	136.70	5.00	1272.70	0.42	0.9490
	1207.40	0.40	133.33	4.00	1276.10	0.43	0.9493
40% ÷ 50% *P _S MAX	1512.90	0.50	134.45	4.00	1599.00	0.53	0.9630
	1511.20	0.50	129.75	4.00	1597.40	0.53	0.9631
	1511.90	0.50	137.35	5.00	1598.70	0.53	0.9631
50% ÷ 60% *P _S MAX	1813.40	0.60	127.45	4.00	1920.00	0.64	0.9712
	1812.40	0.60	132.77	4.00	1919.90	0.64	0.9707
	1808.00	0.60	130.45	4.00	1919.80	0.64	0.9700
60% ÷ 70% *P _S MAX	2113.80	0.70	134.94	4.00	2243.00	0.75	0.9899
	2114.80	0.70	132.47	4.00	2245.30	0.75	0.9900
	2119.50	0.71	132.62	4.00	2246.30	0.75	0.9900
70% ÷ 80% *P _S MAX	2412.70	0.80	136.46	5.00	2563.60	0.85	0.9975
	2413.20	0.80	124.96	4.00	2565.00	0.86	0.9976
	2414.20	0.80	138.61	5.00	2566.30	0.86	0.9974
80% ÷ 90% *P _S MAX	2705.90	0.90	135.89	5.00	2884.90	0.96	0.9980
	2708.40	0.90	131.49	4.00	2885.70	0.96	0.9979
	2705.00	0.90	132.59	4.00	2882.20	0.96	0.9979
90% ÷ 100% *P _S MAX	2924.90	0.97	141.78	5.00	3108.20	1.04	0.9979
	2924.20	0.97	127.44	4.00	3107.60	1.04	0.9979
	2921.40	0.97	129.10	4.00	3105.00	1.04	0.9979

TABLE_ Reactive power production with set point Q = +Qmax							
Power	Active Power		Reactive Power		DC Power		Power Factor
	W	P. U	VAr	%Sn	W	P. U	cosφ
90% ÷ 100% *P _C MAX*	-3014.40	-1.00	129.34	4.31	-2857.50	-0.95	-0.9961
	-3012.10	-1.00	137.42	4.58	-2856.00	-0.95	-0.9962
	-3014.30	-1.00	134.13	4.47	-2857.40	-0.95	-0.9962
80% ÷ 90% *P _C MAX*	-2711.90	-0.90	133.55	4.45	-2574.10	-0.86	-0.8865
	-2712.70	-0.90	130.69	4.36	-2573.30	-0.86	-0.8841
	-2712.30	-0.90	143.81	4.79	-2570.90	-0.86	-0.8802
70% ÷ 80% *P _C MAX	-2409.40	-0.80	1842.00	61.40	-2283.40	-0.76	-0.7944
	-2411.20	-0.80	1841.10	61.37	-2283.00	-0.76	-0.7948
	-2412.60	-0.80	1837.00	61.23	-2282.80	-0.76	-0.7956
60% ÷ 70% *P _C MAX	-2101.80	-0.70	1840.80	61.36	-1991.90	-0.66	-0.7523
	-2102.80	-0.70	1827.30	60.91	-1991.40	-0.66	-0.7548
	-2100.50	-0.70	1828.50	60.95	-1989.10	-0.66	-0.7543
50% ÷ 60% *P _C MAX	-1844.80	-0.61	1819.70	60.66	-1748.70	-0.58	-0.7119
	-1842.50	-0.61	1821.40	60.71	-1748.50	-0.58	-0.7112
	-1855.00	-0.62	1814.30	60.48	-1757.00	-0.59	-0.7149
40% ÷ 50% *P _C MAX	-1541.70	-0.51	1797.00	59.90	-1459.40	-0.49	-0.6511
	-1535.10	-0.51	1796.10	59.87	-1457.00	-0.49	-0.6497
	-1543.40	-0.51	1799.50	59.98	-1460.70	-0.49	-0.6510
30% ÷ 40% *P _C MAX	-1239.40	-0.41	1780.40	59.35	-1170.90	-0.39	-0.5713
	-1238.60	-0.41	1779.60	59.32	-1170.50	-0.39	-0.5713
	-1237.00	-0.41	1781.90	59.40	-1170.60	-0.39	-0.5703
20% ÷ 30% *P _C MAX	-939.51	-0.31	1765.30	58.84	-881.15	-0.29	-0.4698
	-943.21	-0.31	1764.80	58.83	-884.39	-0.29	-0.4714
	-942.59	-0.31	1772.30	59.08	-882.42	-0.29	-0.4696
10% ÷ 20% *P _C MAX	-644.22	-0.21	1740.70	58.02	-591.74	-0.20	-0.3471
	-641.36	-0.21	1732.90	57.76	-589.71	-0.20	-0.3471
	-643.29	-0.21	1733.70	57.79	-589.52	-0.20	-0.3479
0% ÷ 10% *P _C MAX	-327.72	-0.11	1724.70	57.49	-280.14	-0.09	-0.1867
	-327.81	-0.11	1719.40	57.31	-286.58	-0.10	-0.1873
	-326.52	-0.11	1724.10	57.47	-284.55	-0.09	-0.1861
0% ÷ 10% *P _S MAX	284.39	0.09	1755.00	58.50	331.62	0.11	0.1600
	281.81	0.09	1746.40	58.21	328.99	0.11	0.1593

	284.97	0.09	1748.10	58.27	332.69	0.11	0.1609
10% ÷ 20% *P _S MAX	599.95	0.20	1724.30	57.48	656.03	0.22	0.3286
	602.13	0.20	1730.90	57.70	656.47	0.22	0.3286
	604.98	0.20	1740.20	58.01	659.56	0.22	0.3284
20% ÷ 30% *P _S MAX	919.81	0.31	1736.60	57.89	986.86	0.33	0.4681
	913.93	0.30	1730.40	57.68	982.86	0.33	0.4670
	917.75	0.31	1722.70	57.42	986.31	0.33	0.4702
30% ÷ 40% *P _S MAX	1226.90	0.41	1725.10	57.50	1306.90	0.44	0.5796
	1231.20	0.41	1720.30	57.34	1310.60	0.44	0.5820
	1235.50	0.41	1729.90	57.66	1312.70	0.44	0.5812
40% ÷ 50% *P _S MAX	1542.20	0.51	1737.70	57.92	1635.70	0.55	0.6765
	1540.90	0.51	1728.40	57.61	1636.00	0.55	0.6756
	1541.70	0.51	1719.70	57.32	1635.60	0.55	0.6781
50% ÷ 60% *P _S MAX	1845.20	0.62	1725.00	57.50	1959.60	0.65	0.7424
	1845.10	0.62	1735.50	57.85	1958.40	0.65	0.7405
	1836.40	0.61	1730.20	57.67	1952.70	0.65	0.7394
60% ÷ 70% *P _S MAX	2143.70	0.71	1728.30	57.61	2275.50	0.76	0.7900
	2147.60	0.72	1718.20	57.27	2280.40	0.76	0.7928
	2147.90	0.72	1738.40	57.95	2283.80	0.76	0.7921
70% ÷ 80% *P _S MAX	2451.80	0.82	1728.50	57.62	2598.40	0.87	0.9976
	2458.00	0.82	1735.40	57.85	2604.00	0.87	0.9974
	2462.10	0.82	1718.80	57.29	2608.50	0.87	0.9975
80% ÷ 90% *P _S MAX*	2753.50	0.92	142.37	4.75	2921.90	0.97	0.9979
	2755.80	0.92	129.68	4.32	2921.60	0.97	0.9978
	2755.60	0.92	137.40	4.58	2924.40	0.97	0.9979
90% ÷ 100% *P _S MAX*	2922.20	0.97	194.57	6.49	3108.40	1.04	0.9978
	2920.10	0.97	195.60	6.52	3106.10	1.04	0.9978
	2917.30	0.97	197.55	6.59	3103.10	1.03	0.9977

TABLE_ Reactive power production with set point Q = -Qmax							
Power	Active Power		Reactive Power		DC Power		Power Factor
	W	P. U	VAr	%Sn	W	P. U	cosφ
90% ÷ 100% *P _C MAX*	-3011.60	-1.00	133.74	4.46	-2838.20	-0.95	-0.9963
	-3010.00	-1.00	131.44	4.38	-2837.20	-0.95	-0.9960
	-3009.50	-1.00	134.16	4.47	-2836.80	-0.95	-0.9960
80% ÷ 90% *P _C MAX*	-2698.20	-0.90	139.00	4.63	-2544.80	-0.85	-0.9979
	-2698.90	-0.90	135.45	4.52	-2547.60	-0.85	-0.9977
	-2696.20	-0.90	128.40	4.28	-2545.60	-0.85	-0.9974
70% ÷ 80% *P _C MAX	-2399.30	-0.80	-1772.70	-59.09	-2253.90	-0.75	-0.8396
	-2390.90	-0.80	-1773.30	-59.11	-2247.00	-0.75	-0.8386
	-2390.80	-0.80	-1771.70	-59.06	-2248.00	-0.75	-0.8388
60% ÷ 70% *P _C MAX	-2088.60	-0.70	-1748.30	-58.28	-1961.50	-0.65	-0.8033
	-2084.90	-0.69	-1773.00	-59.10	-1958.80	-0.65	-0.8001
	-2086.90	-0.70	-1747.10	-58.24	-1960.70	-0.65	-0.8035
50% ÷ 60% *P _C MAX	-1835.10	-0.61	-1770.00	-59.00	-1720.40	-0.57	-0.7619
	-1827.50	-0.61	-1777.10	-59.24	-1715.40	-0.57	-0.7616
	-1832.80	-0.61	-1770.10	-59.00	-1719.90	-0.57	-0.7615
40% ÷ 50% *P _C MAX	-1528.80	-0.51	-1777.30	-59.24	-1428.90	-0.48	-0.6983
	-1522.60	-0.51	-1774.70	-59.16	-1423.70	-0.47	-0.6951
	-1527.20	-0.51	-1770.80	-59.03	-1428.90	-0.48	-0.6971
30% ÷ 40% *P _C MAX	-1228.10	-0.41	-1772.30	-59.08	-1141.10	-0.38	-0.6156
	-1226.30	-0.41	-1777.20	-59.24	-1140.00	-0.38	-0.6138
	-1223.00	-0.41	-1779.10	-59.30	-1138.60	-0.38	-0.6148
20% ÷ 30% *P _C MAX	-933.74	-0.31	-1781.40	-59.38	-854.94	-0.28	-0.5084
	-924.33	-0.31	-1787.20	-59.57	-848.97	-0.28	-0.5037
	-927.90	-0.31	-1772.70	-59.09	-850.84	-0.28	-0.5082
10% ÷ 20% *P _C MAX	-633.75	-0.21	-1787.90	-59.60	-563.33	-0.19	-0.3709
	-637.82	-0.21	-1791.70	-59.72	-567.02	-0.19	-0.3720
	-635.92	-0.21	-1793.30	-59.78	-566.95	-0.19	-0.3707
0% ÷ 10% *P _C MAX	-329.93	-0.11	-1714.80	-57.16	-270.60	-0.09	-0.2002
	-330.09	-0.11	-1707.80	-56.93	-264.79	-0.09	-0.2011
	-328.41	-0.11	-1712.70	-57.09	-270.33	-0.09	-0.1996
0% ÷ 10% *P _S MAX	261.82	0.09	-1772.30	-59.08	323.34	0.11	0.1556
	261.46	0.09	-1777.30	-59.24	323.82	0.11	0.1551

	257.52	0.09	-1778.20	-59.27	325.11	0.11	0.1526
10% ÷ 20% *P _S MAX	605.98	0.20	-1724.70	-57.49	679.42	0.23	0.3495
	605.04	0.20	-1720.40	-57.35	680.67	0.23	0.3498
	602.08	0.20	-1727.90	-57.60	681.29	0.23	0.3473
20% ÷ 30% *P _S MAX	918.50	0.31	-1737.10	-57.90	1004.90	0.33	0.4898
	923.41	0.31	-1739.20	-57.97	1010.20	0.34	0.4908
	925.50	0.31	-1741.80	-58.06	1012.00	0.34	0.4911
30% ÷ 40% *P _S MAX	1229.50	0.41	-1773.90	-59.13	1330.90	0.44	0.5966
	1228.80	0.41	-1770.40	-59.01	1327.40	0.44	0.5972
	1223.80	0.41	-1777.00	-59.23	1323.30	0.44	0.5941
40% ÷ 50% *P _S MAX	1527.90	0.51	-1772.10	-59.07	1645.90	0.55	0.6746
	1536.10	0.51	-1778.70	-59.29	1652.00	0.55	0.6751
	1541.70	0.51	-1777.00	-59.23	1656.20	0.55	0.6792
50% ÷ 60% *P _S MAX	1834.20	0.61	-1788.10	-59.60	1970.30	0.66	0.7358
	1836.90	0.61	-1783.10	-59.44	1973.20	0.66	0.7373
	1841.20	0.61	-1781.40	-59.38	1978.40	0.66	0.7384
60% ÷ 70% *P _S MAX	2136.30	0.71	-1797.70	-59.92	2291.80	0.76	0.7831
	2144.00	0.71	-1794.10	-59.80	2298.30	0.77	0.7846
	2142.60	0.71	-1797.70	-59.92	2300.50	0.77	0.7838
70% ÷ 80% *P _S MAX	2307.30	0.77	-1748.10	-58.27	2476.10	0.83	0.8137
	2301.60	0.77	-1744.40	-58.15	2468.60	0.82	0.8137
	2308.80	0.77	-1741.30	-58.04	2476.90	0.83	0.8150
80% ÷ 90% *P _S MAX*	2448.90	0.82	-1739.90	-58.00	2611.70	0.87	0.9976
	2448.90	0.82	-1749.70	-58.32	2612.90	0.87	0.9976
	2453.10	0.82	-1737.30	-57.91	2618.00	0.87	0.9976
90% ÷ 100% *P _S MAX*	2916.20	0.97	133.40	4.45	3123.60	1.04	0.9978
	2920.30	0.97	133.09	4.44	3126.00	1.04	0.9980
	2920.30	0.97	135.07	4.50	3126.10	1.04	0.9979



Bbis.6.6	Table: Automatic supply of reactive power according to a characteristic curve $\cos\phi=f(P)$	P
Max. cos declared..... :		cos : 0.9
Set value..... :		Lock-in: 1.05 Vn (Vn and 1.1 Vn with steps of 0.01) Lock-out: 1.00Vn (0.9 Vn and Vn with steps of 0.01)

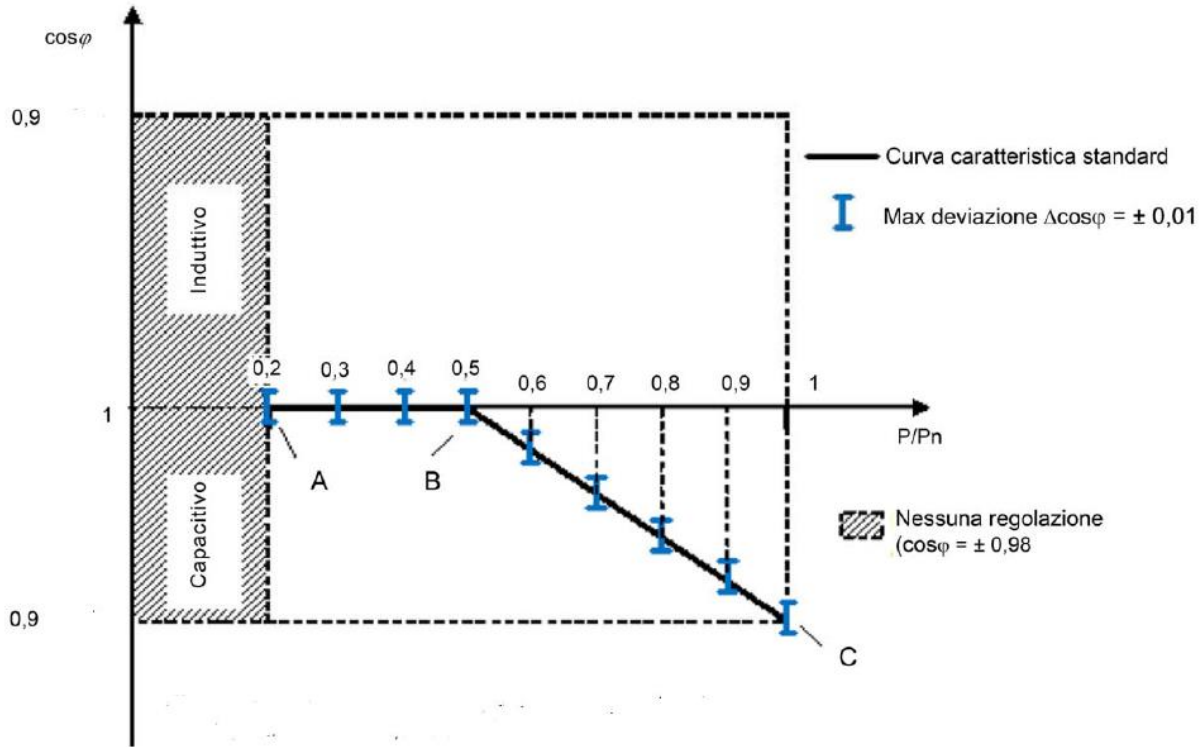
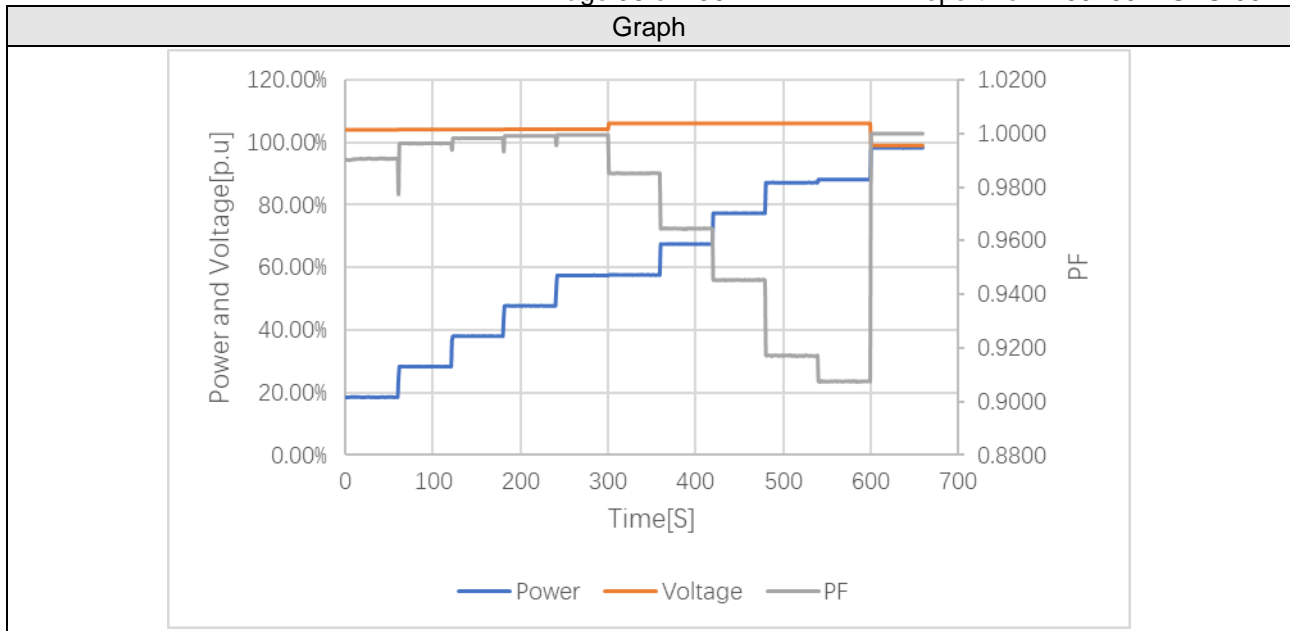


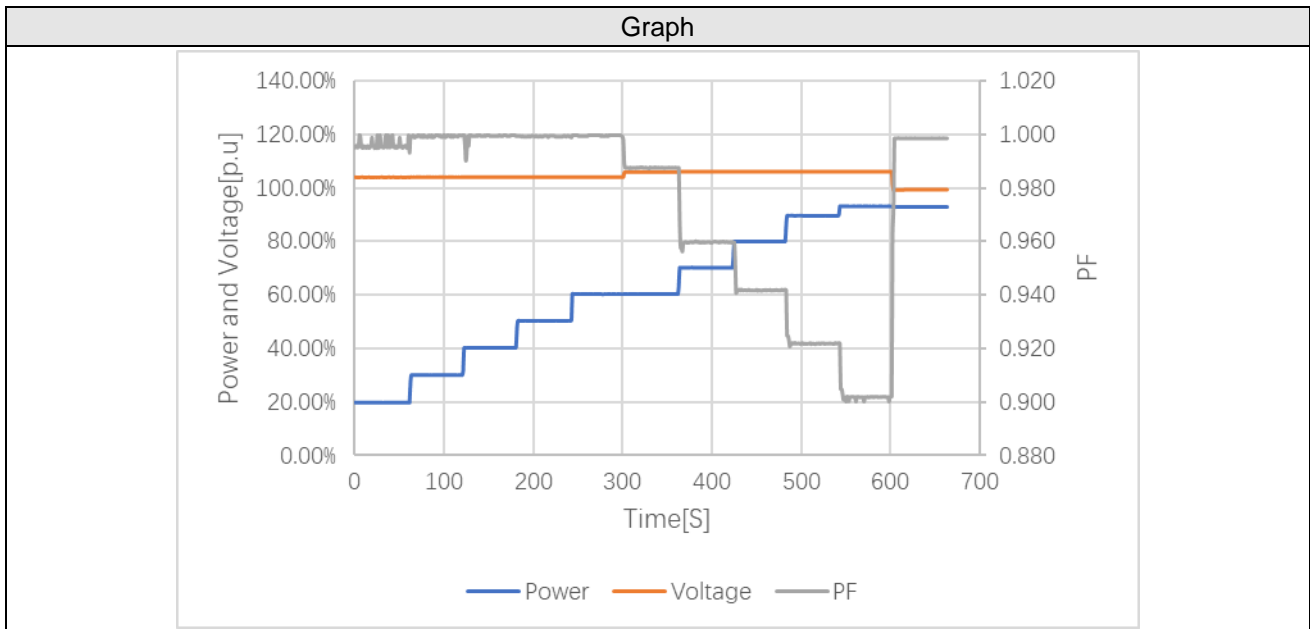
Figura 7Bbis – Curva caratteristica standard $\cos\phi = f(P)$

Model: BD6KTL-RL1 tested with PV input

P/Pn (%)	P _{SMAX} (W)	Voltage(V)	Q (Var)	Measured $\cos\phi$	Desired $\cos\phi$	$\Delta \cos\phi$	Limit
20%	1124.04	239.26	155.67	0.9905	1.0000	-0.0095	± 0.01
30%	1710.17	239.36	147.67	0.9963	1.0000	-0.0037	± 0.01
40%	2293.83	239.46	137.83	0.9982	1.0000	-0.0018	± 0.01
50%	2876.42	239.56	129.32	0.9990	1.0000	-0.0010	± 0.01
60%	3458.97	239.66	121.51	0.9994	1.0000	-0.0006	± 0.01
60%	3468.19	243.85	604.55	0.9851	0.9800	0.0051	± 0.01
70%	4059.43	243.95	1109.95	0.9646	0.9600	0.0046	± 0.01
80%	4649.79	243.85	1601.96	0.9455	0.9400	0.0055	± 0.01
90%	5237.64	243.86	2273.55	0.9173	0.9200	-0.0027	± 0.01
100%	5297.78	243.87	2448.68	0.9077	0.9000	0.0077	± 0.01
100%	5905.62	227.64	84.42	0.9999	1.0000	-0.0001	± 0.01



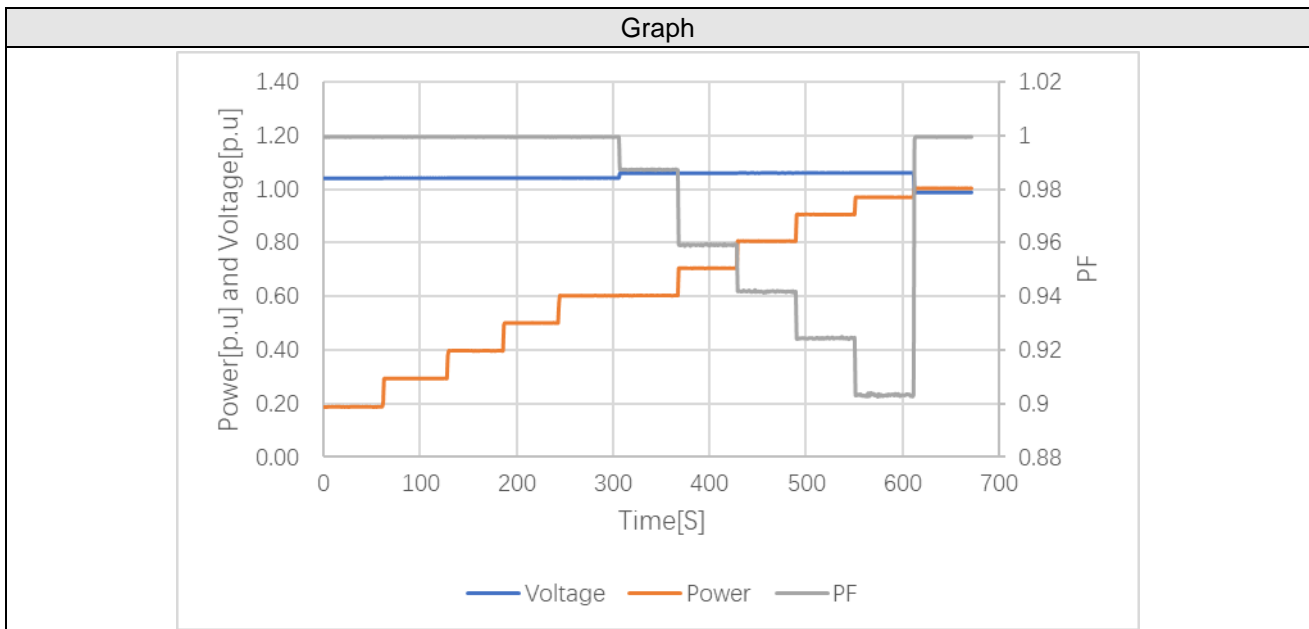
Model: BD6KTL-RL1 tested with battery VT48100E-P1							
P/Pn (%)	P _S MAX (W)	Voltage(V)	Q (Var)	Measured cos φ	Desired cos φ	Δ cos φ	Limit
20%	952.36	239.12	131.11	0.9999	1.0000	-0.0001	±0.01
30%	1446.10	239.18	166.36	0.9999	1.0000	-0.0001	±0.01
40%	1934.50	239.26	176.80	0.9999	1.0000	-0.0001	±0.01
50%	2423.20	239.28	276.14	0.9996	1.0000	-0.0004	±0.01
60%	2895.80	239.34	210.15	0.9999	1.0000	-0.0001	±0.01
60%	2896.40	243.83	-567.19	0.9879	0.9800	0.0079	±0.01
70%	3369.00	243.88	-1222.70	0.9600	0.9600	0.0000	±0.01
80%	3837.90	243.94	-1611.40	0.9420	0.9400	0.0020	±0.01
90%	4297.80	244.00	-1911.70	0.9220	0.9200	0.0020	±0.01
100%	4466.00	244.02	-216.28	0.9019	0.9000	0.0019	±0.01
100%	4456.50	228.26	-221.71	0.9988	1.0000	-0.0012	±0.01



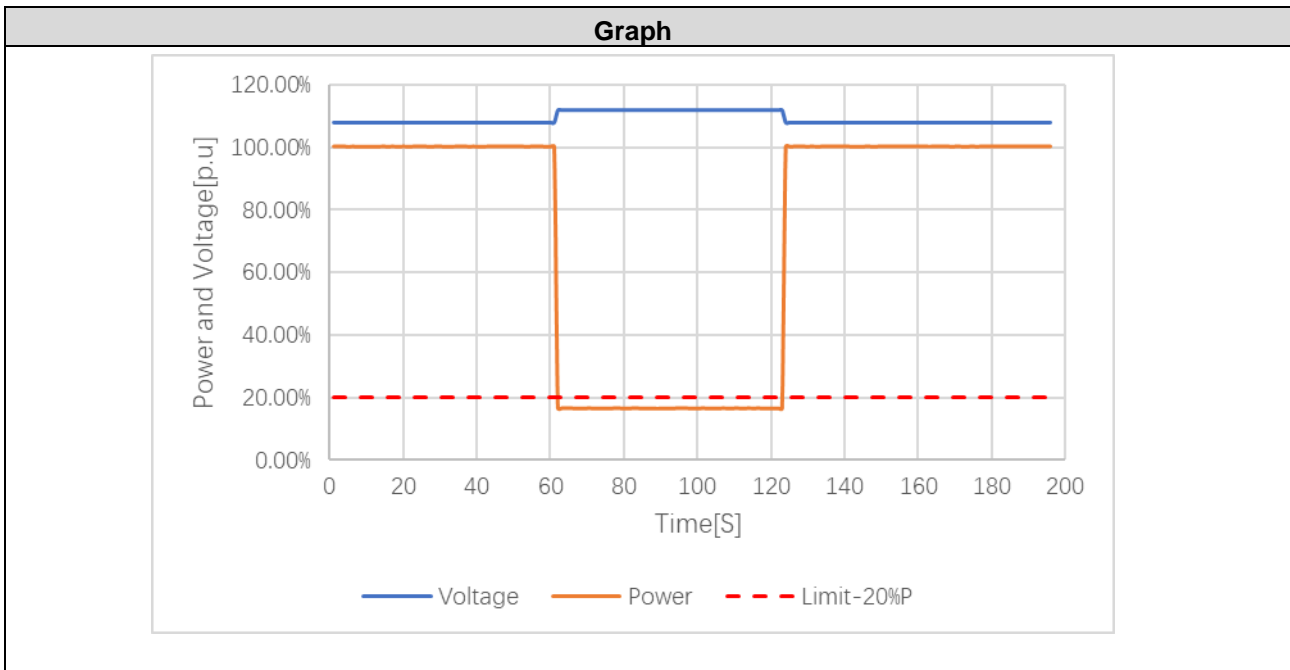
Model: BD3KTL-RL1 tested with battery VT48100E-P1

P/Pn (%)	P _S MAX (W)	Voltage(V)	Q (Var)	Measured cos φ	Desired cos φ	Δ cos φ	Limit
20%	565.98	239.16	62.18	0.9996	1.0000	-0.0004	±0.01
30%	882.70	239.23	63.87	0.9996	1.0000	-0.0004	±0.01
40%	1192.26	239.29	59.70	0.9996	1.0000	-0.0004	±0.01
50%	1502.13	239.35	61.73	0.9996	1.0000	-0.0004	±0.01
60%	1806.36	239.41	64.12	0.9996	1.0000	-0.0004	±0.01
60%	1807.85	243.21	662.27	0.9874	0.9800	0.0074	±0.01
70%	2112.27	243.27	718.84	0.9593	0.9600	-0.0007	±0.01
80%	2414.72	243.33	802.87	0.9419	0.9400	0.0019	±0.01
90%	2711.63	243.39	1061.77	0.9245	0.9200	0.0045	±0.01
100%	2902.81	243.43	1379.08	0.9033	0.9000	0.0033	±0.01
100%	3003.11	227.60	178.41	0.9996	1.0000	-0.0004	±0.01

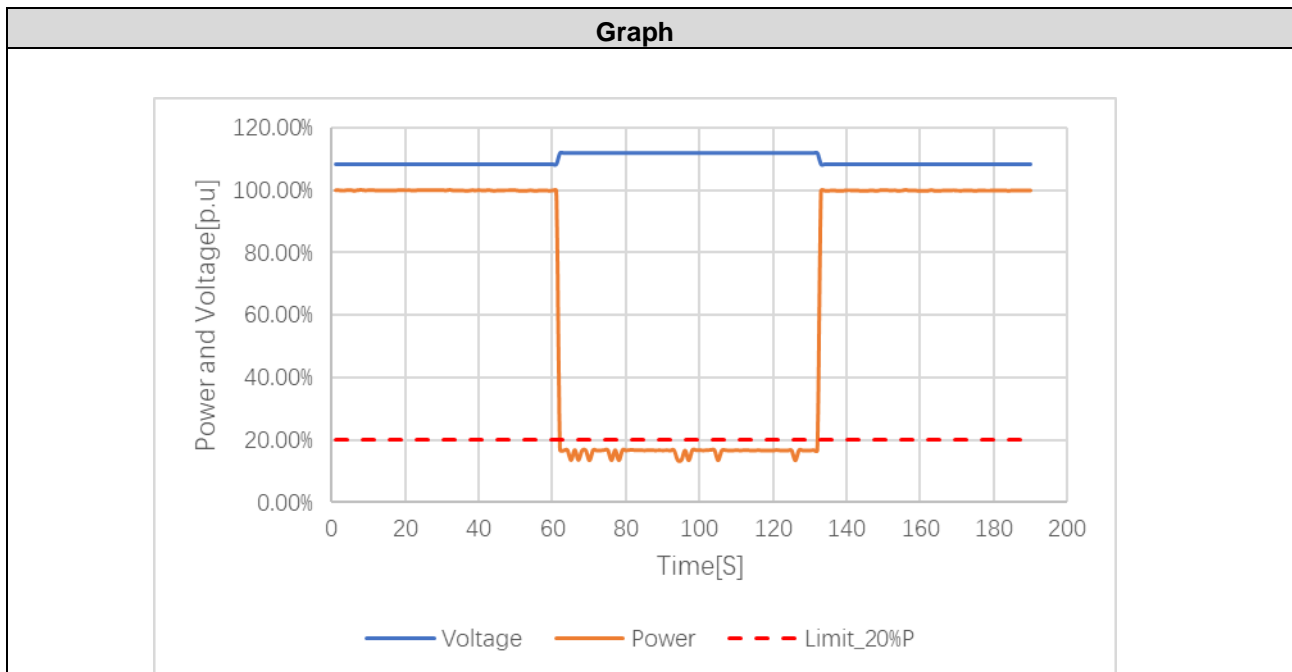
Graph



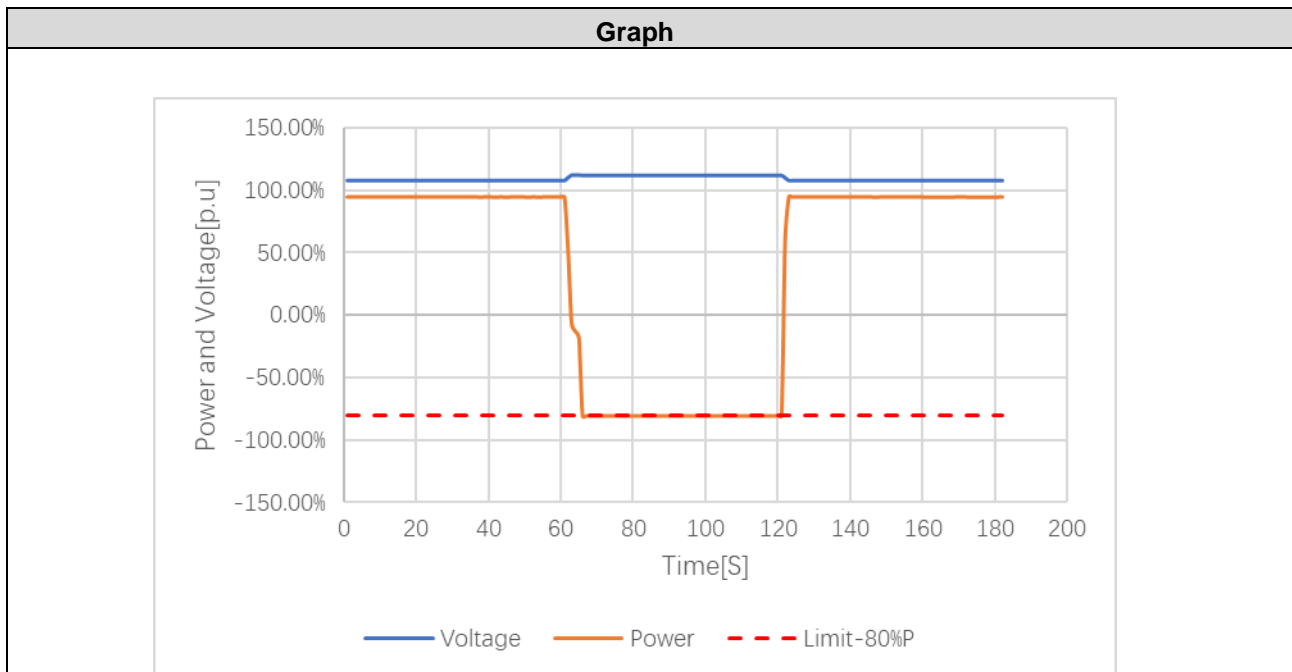
Bbis.7.1	Table: Automatic limitation of active power for voltage values close to 110% of the rated voltage					P
Model	BD6KTL-RL1 tested with PV input					
Step #	Set voltage vaule [V/Vn]	Voltage [V]	Measured power values [W]	Measured power [%]	Limit	RESULT
1	1,08	248.50	6012.76	100.21	--	PASS
2	1,12	257.65	1003.80	16.73	<20%P _S MAX	PASS
3	1,08	248.50	6019.70	100.33	--	PASS



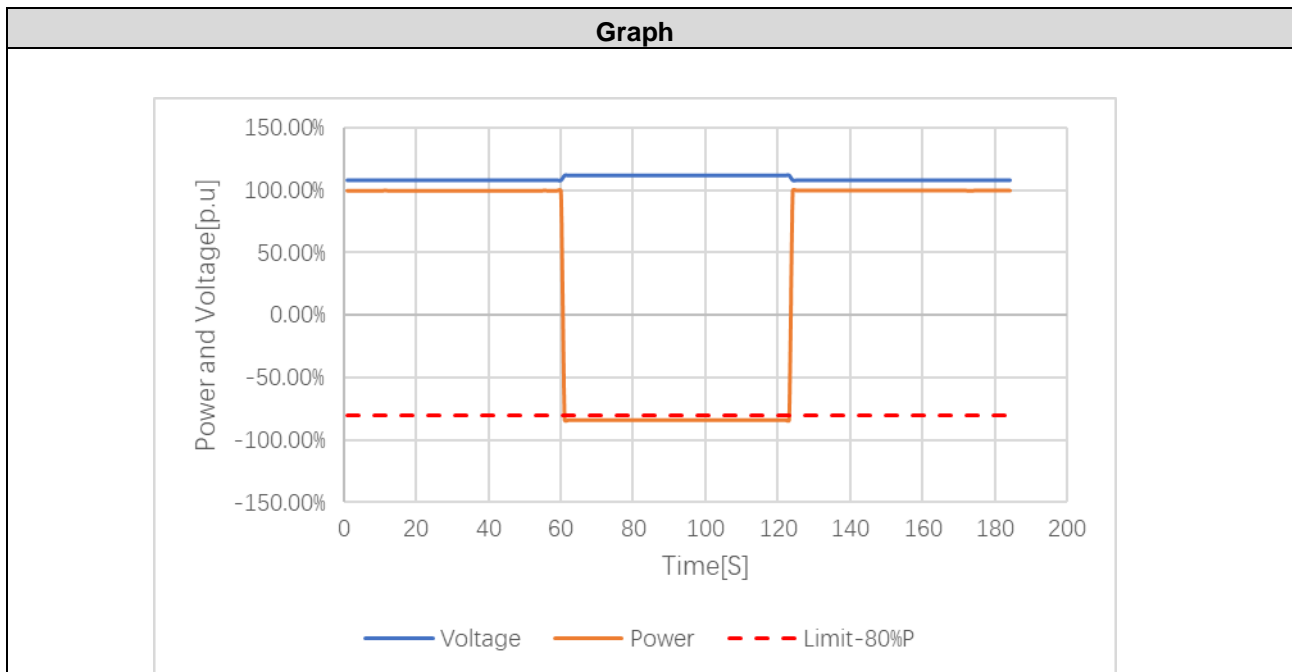
Model	BD3KTL-RL1 tested with PV input					
Step #	Set voltage vaule [V/Vn]	Voltage [V]	Measured power values [W]	Measured power [%]	Limit	RESULT
1	1,08	248.82	2992.10	99.74	--	PASS
2	1,12	257.44	498.38	16.61	<20%P _S MAX	PASS
3	1,08	248.83	2992.80	99.76	--	PASS



Model	BD6KTL-RL1 tested with battery VT48100E-P1					
Step #	Set voltage vaule [V/Vn]	Voltage [V]	Measured power values [W]	Measured power [%]	Limit	RESULT
1	1,08	248.74	4540.40	94.59	--	PASS
2	1,12	257.66	-3877.70	-80.79	>80%P _C MAX	PASS
3	1,08	248.74	4540.10	94.59	--	PASS

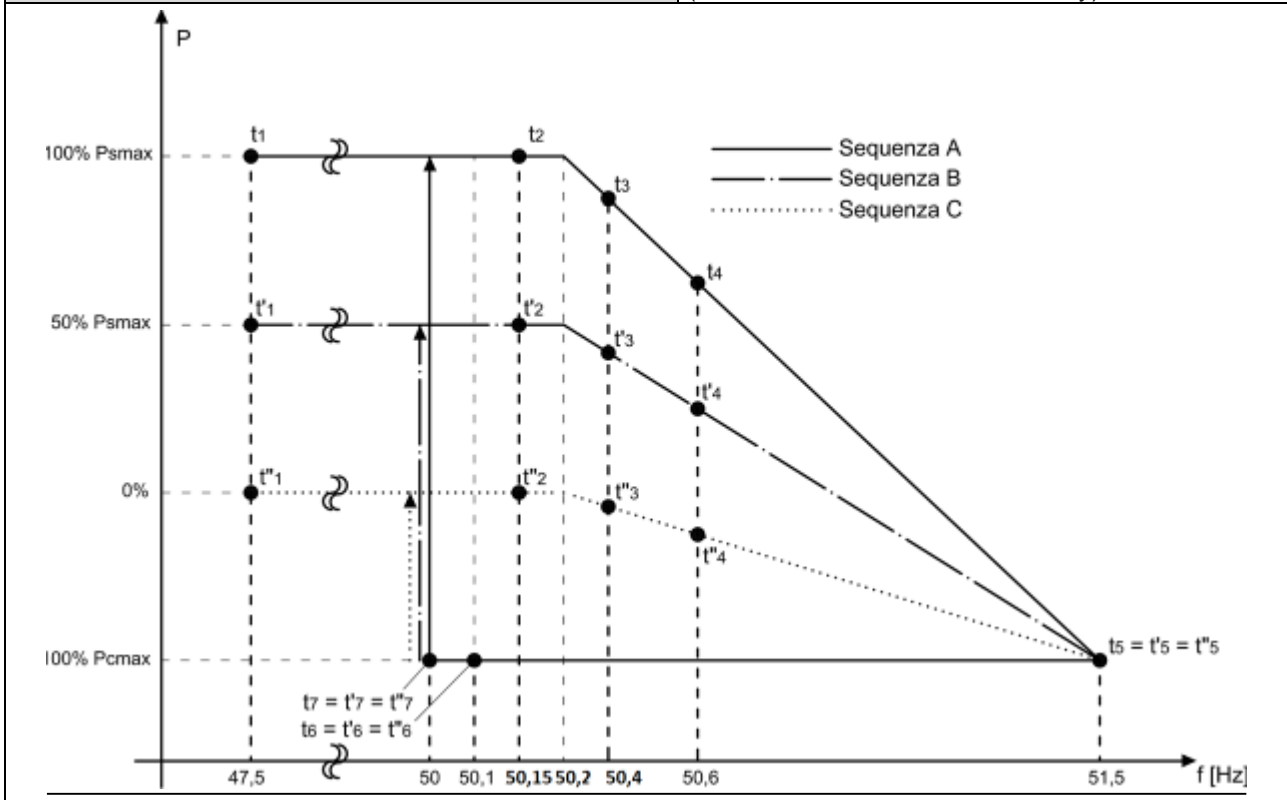


Model	BD3KTL-RL1 tested with battery VT48100E-P1					
Step #	Set voltage vaule [V/Vn]	Voltage [V]	Measured power values [W]	Measured power [%]	Limit	RESULT
1	1,08	248.42	2996.50	99.88	--	PASS
2	1,12	257.53	-2533.90	-84.46	>80%P _C MAX	PASS
3	1,08	248.51	2998.40	99.98	--	PASS



Bbis.7.2	Table: Verification of the automatic reduction of the active power in presence of overfrequency transients on the network	P
-----------------	--	----------

Activation settings.....: Settable delay from 0s to 1s with step of 50ms (default value: no intentional delay)



Model: BD6KTL-RL1 tested with PV input

EUT working at 100% of nominal power, over frequency

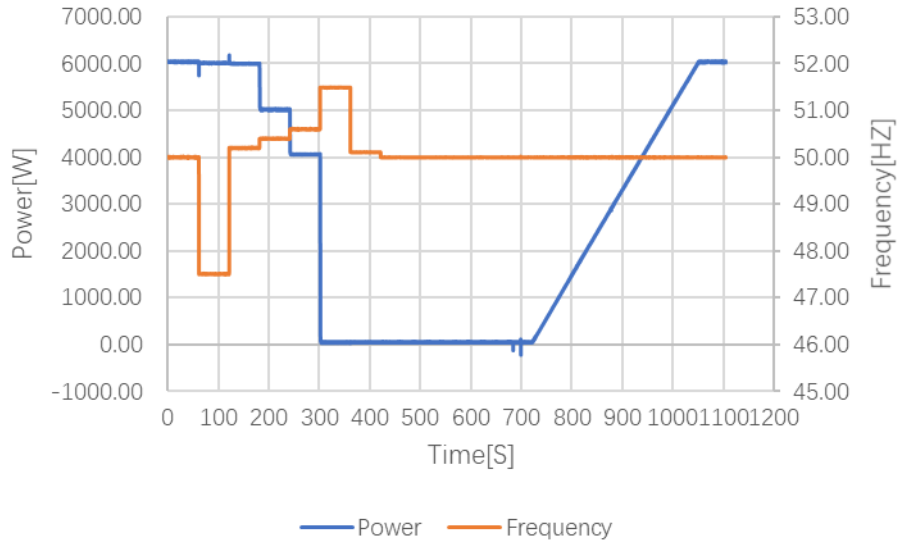
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%Pn)	Active Power measured (%Pn)	Deviation (%Sn)	Limit (%Sn)
47.51Hz±0.01Hz	47.51	100	100.24	0.24	± 2.5
50.20Hz±0.01Hz	50.20	100	99.97	-0.03	± 2.5
50.40Hz±0.01Hz	50.40	84.62	83.71	-0.91	± 2.5
50.60Hz±0.01Hz	50.60	69.23	67.71	-1.52	± 2.5
51.49Hz±0.01Hz	51.49	0.77	0.86	0.09	± 2.5
50.11Hz±0.01Hz	50.11	0.77	0.92	0.15	± 2.5
50.00Hz±0.01Hz	50.00	100	100.71	0.71	± 2.5

Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Decrease of Active Power Desired % * [Pmem-Pmin] / min	Increase of Active Power Measured % * [Pmem-Pmin] / min
≥300	302.3	≤20%	18.45

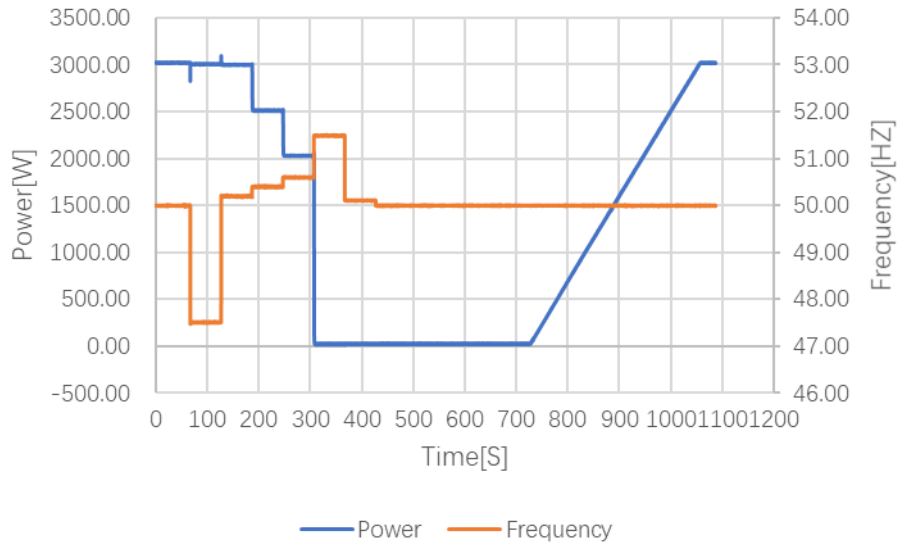
EUT working at 50% of nominal power, over frequency					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _n)	Active Power measured (%P _n)	Deviation (%Sn)	Limit (%Sn)
47.51Hz±0.01Hz	47.51	50	50.12	0.12	± 2.5
50.20Hz±0.01Hz	50.20	50	49.99	-0.01	± 2.5
50.40Hz±0.01Hz	50.40	42.31	41.87	-0.44	± 2.5
50.60Hz±0.01Hz	50.60	34.61	33.85	-0.76	± 2.5
51.49Hz±0.01Hz	51.49	0.39	0.43	0.04	± 2.5
50.11Hz±0.01Hz	50.11	0.39	0.46	0.07	± 2.5
50.00Hz±0.01Hz	50.00	50	50.27	0.27	± 2.5

Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Decrease of Active Power Desired % * [P _{mem} -P _{min}] / min	Increase of Active Power Measured % * [P _{mem} -P _{min}] / min
≥300	302.3	≤20%	9.22

EUT working at 100% of nominal power, overfrequency

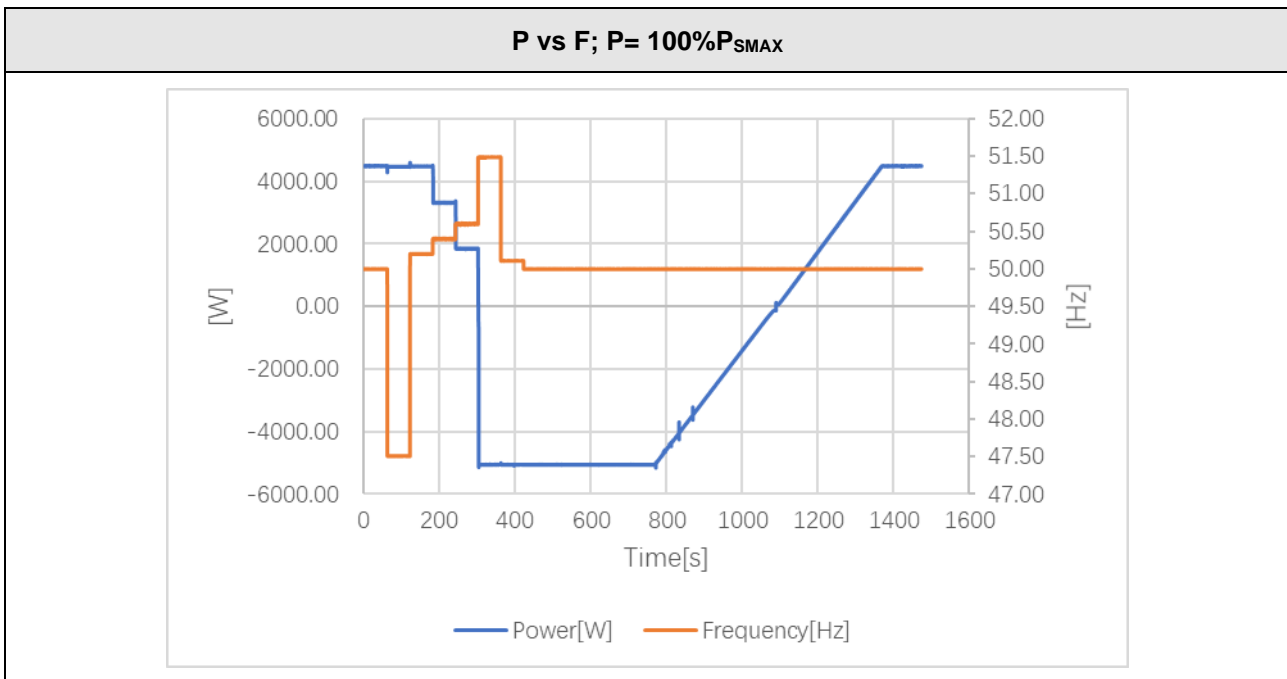


EUT working at 50% of nominal power, overfrequency



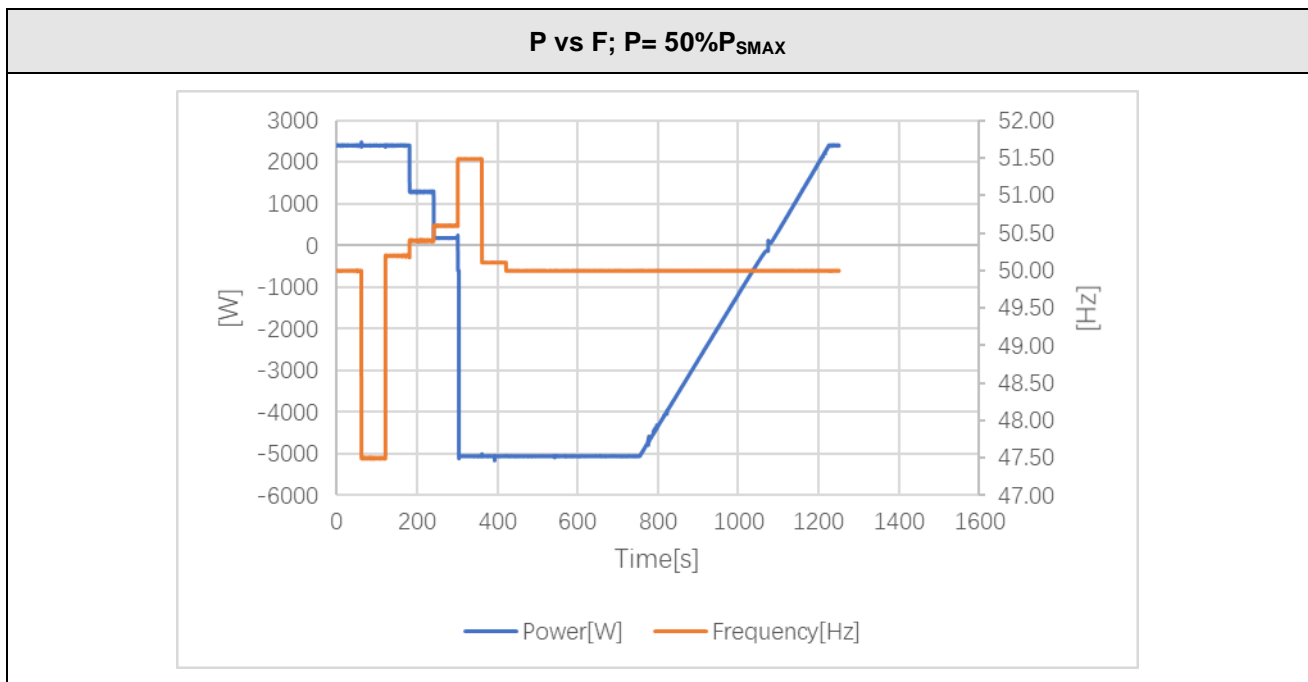
Model: BD6KTL-RL1 tested with battery VT48100E-P1					
Test at 100% P _{S MAX}					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _{S MAX})	Active Power measured (%P _{S MAX})	Deviation (%Sn)	Limit (%Sn)
47.51Hz±0.01Hz	47.51	100.00	93.20	-6.80	± 2.5
50.20Hz±0.01Hz	50.20	100.00	93.54	-6.46	± 2.5
50.40Hz±0.01Hz	50.40	69.23	69.16	-0.07	± 2.5
50.60Hz±0.01Hz	50.60	38.46	38.52	0.06	± 2.5
51.49Hz±0.01Hz	51.49	-98.46	-105.24	-6.78	± 2.5
50.11Hz±0.01Hz	50.11	-98.46	-105.27	-6.81	± 2.5
50.00Hz±0.01Hz	50.00	100.00	93.69	-6.31	± 2.5

Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Decrease of Active Power Desired % * [P _{mem} -P _{min}] / min	Increase of Active Power Measured % * [P _{mem} -P _{min}] / min
≥300	347.8	≤20%	19.89



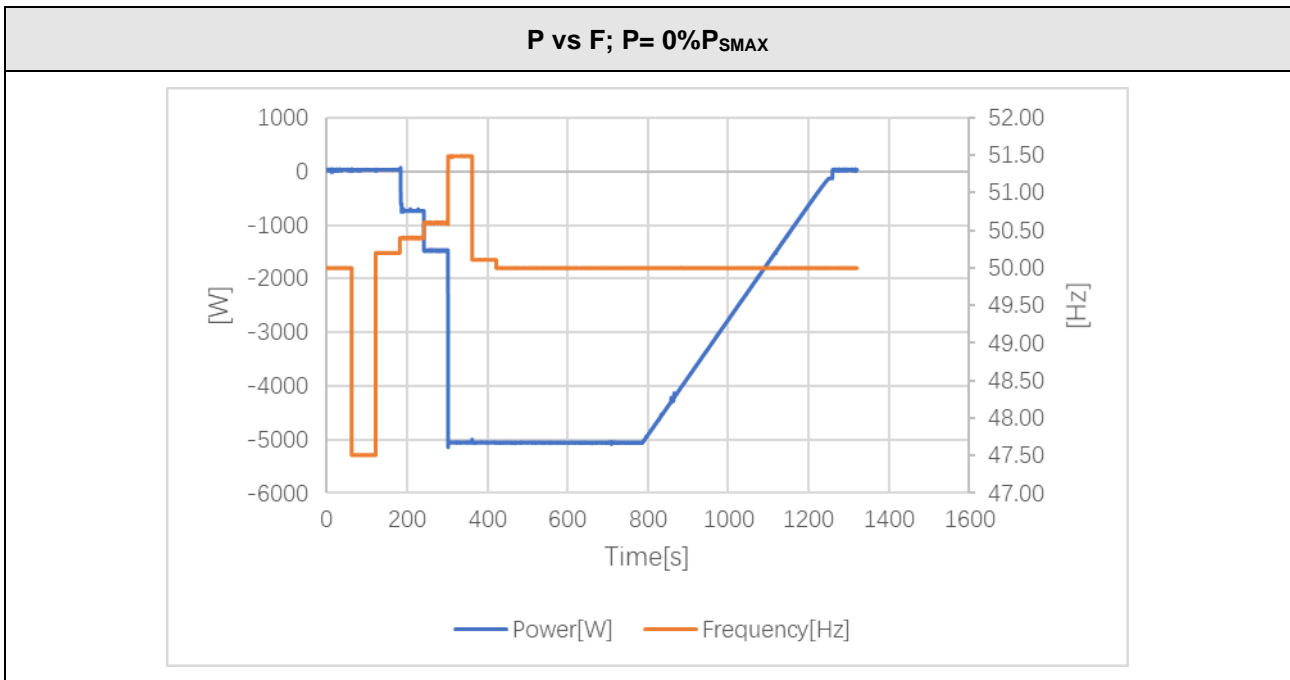
Test at 50% P _{S MAX}					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _{S MAX})	Active Power measured (%P _{S MAX})	Deviation (%Sn)	Limit (%Sn)
47.51Hz±0.01Hz	47.50	50.00	50.18	0.18	± 2.5
50.20Hz±0.01Hz	50.20	50.00	50.12	0.12	± 2.5
50.40Hz±0.01Hz	50.40	26.92	26.98	0.06	± 2.5
50.60Hz±0.01Hz	50.60	3.85	3.88	0.03	± 2.5
51.49Hz±0.01Hz	51.49	-98.85	-105.24	-6.39	± 2.5
50.11Hz±0.01Hz	50.11	-98.85	-105.31	-6.46	± 2.5
50.00Hz±0.01Hz	50.00	50.00 P restored (50.00)	50.15	0.15	± 2.5

Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Increase of Active Power Desired %(P _{mem} -P _{min}) /min	Increase of Active Power Measured %(P _{mem} -P _{min}) /min
≥300	331.7	≤20%	19.78



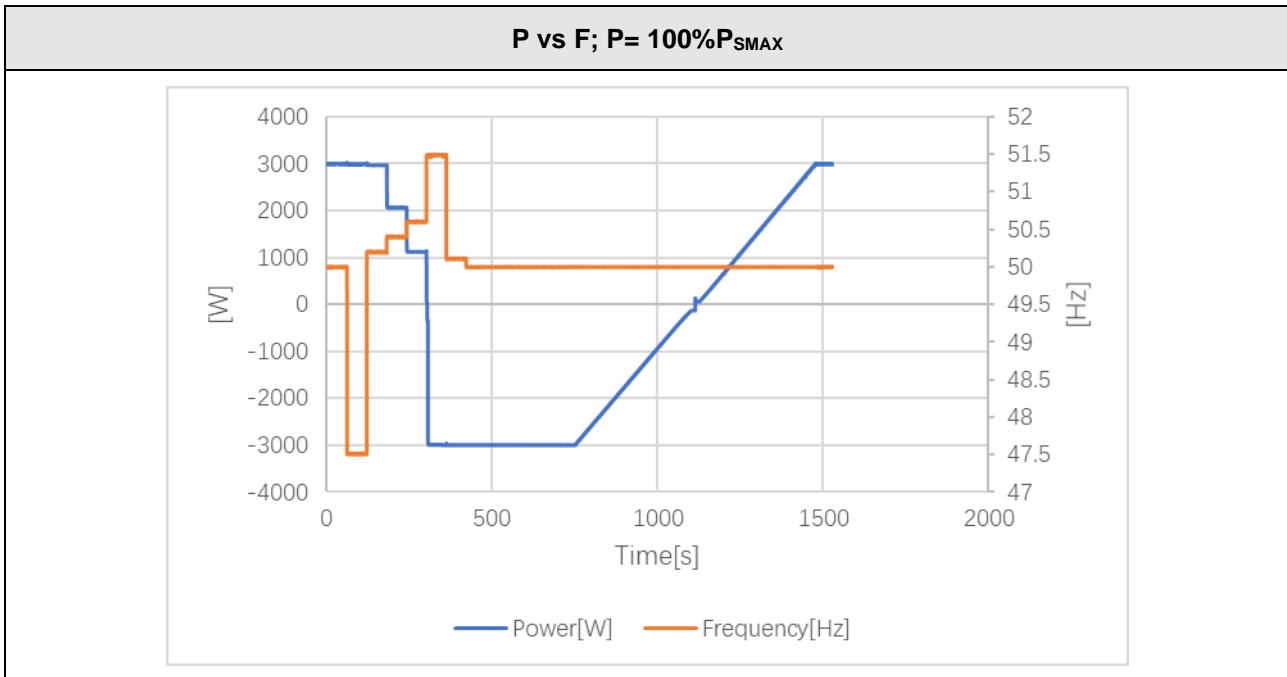
Test at 0% P _S MAX					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _S MAX)	Active Power measured (%P _S MAX)	Deviation (%Sn)	Limit (%Sn)
47.51Hz±0.01Hz	47.51	0.00	0.65	0.65	± 2.5
50.20Hz±0.01Hz	50.20	0.00	0.69	0.69	± 2.5
50.40Hz±0.01Hz	50.40	-15.38	-15.29	0.09	± 2.5
50.60Hz±0.01Hz	50.60	-30.77	-30.74	0.03	± 2.5
51.49Hz±0.01Hz	51.49	-99.23	-105.30	-6.07	± 2.5
50.11Hz±0.01Hz	50.11	-99.23	-105.28	-6.05	± 2.5
50.00Hz±0.01Hz	50.00	0.00	0.72	0.72	± 2.5

Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Increase of Active Power Desired %(P _{mem} -P _{min}) /min	Increase of Active Power Measured %(P _{mem} -P _{min}) /min
≥300	330.1	≤20%	13.37



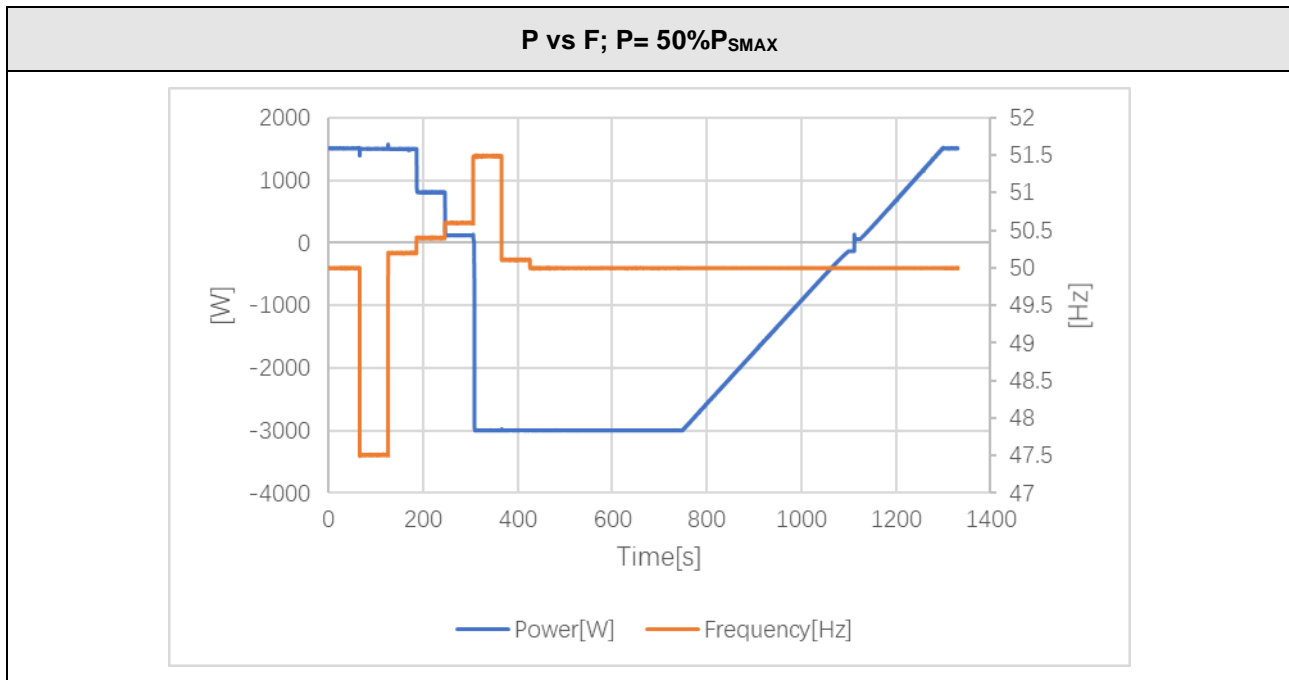
Model: BD3KTL-RL1 tested with battery VT48100E-P1					
Test at 100% P _{S MAX}					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _{S MAX})	Active Power measured (%P _{S MAX})	Deviation (%Sn)	Limit (%Sn)
47.51Hz±0.01Hz	47.51	100.00	99.72	-0.28	± 2.5
50.20Hz±0.01Hz	50.20	100.00	98.88	-1.12	± 2.5
50.40Hz±0.01Hz	50.40	69.23	68.80	-0.43	± 2.5
50.60Hz±0.01Hz	50.60	38.46	37.32	-1.14	± 2.5
51.49Hz±0.01Hz	51.49	-98.46	-99.56	-1.10	± 2.5
50.11Hz±0.01Hz	50.11	-98.46	-99.69	-1.23	± 2.5
50.00Hz±0.01Hz	50.00	100.00	100.01	0.01	± 2.5

Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Decrease of Active Power Desired % * [P _{mem} -P _{min}] / min	Increase of Active Power Measured % * [P _{mem} -P _{min}] / min
≥300	330.5	≤20%	16.44



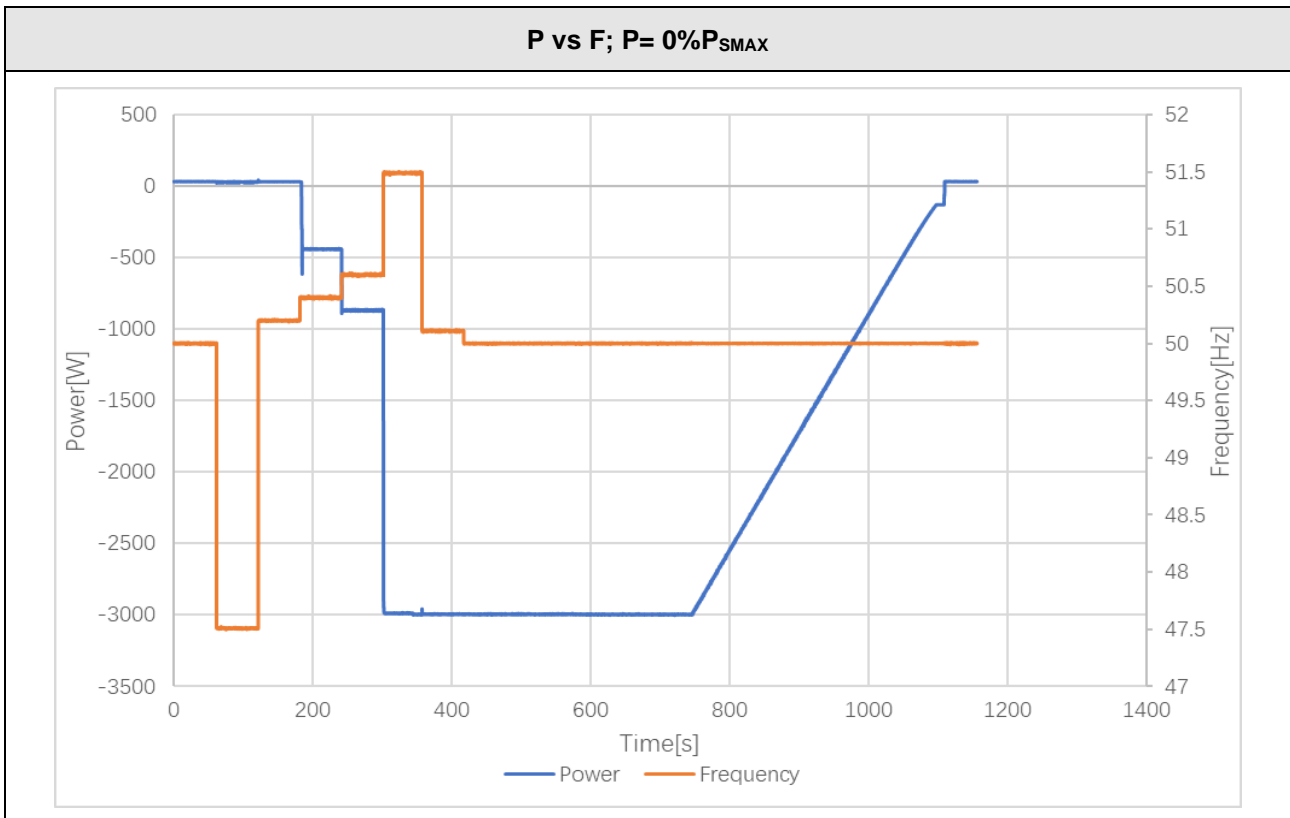
Test at 50% P _{S MAX}					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _{S MAX})	Active Power measured (%P _{S MAX})	Deviation (%Sn)	Limit (%Sn)
47.51Hz±0.01Hz	47.51	50.00	50.11	0.11	± 2.5
50.20Hz±0.01Hz	50.20	50.00	50.13	0.13	± 2.5
50.40Hz±0.01Hz	50.40	26.92	26.81	-0.11	± 2.5
50.60Hz±0.01Hz	50.60	3.85	4.11	0.26	± 2.5
51.49Hz±0.01Hz	51.49	-98.85	-99.82	-0.97	± 2.5
50.11Hz±0.01Hz	50.11	-98.85	-99.73	-0.88	± 2.5
50.00Hz±0.01Hz	50.00	50.00	50.54	0.54	± 2.5

Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Increase of Active Power Desired %(P _{mem} -P _{min}) /min	Increase of Active Power Measured %(P _{mem} -P _{min}) /min
≥300	323.8	≤20%	16.32



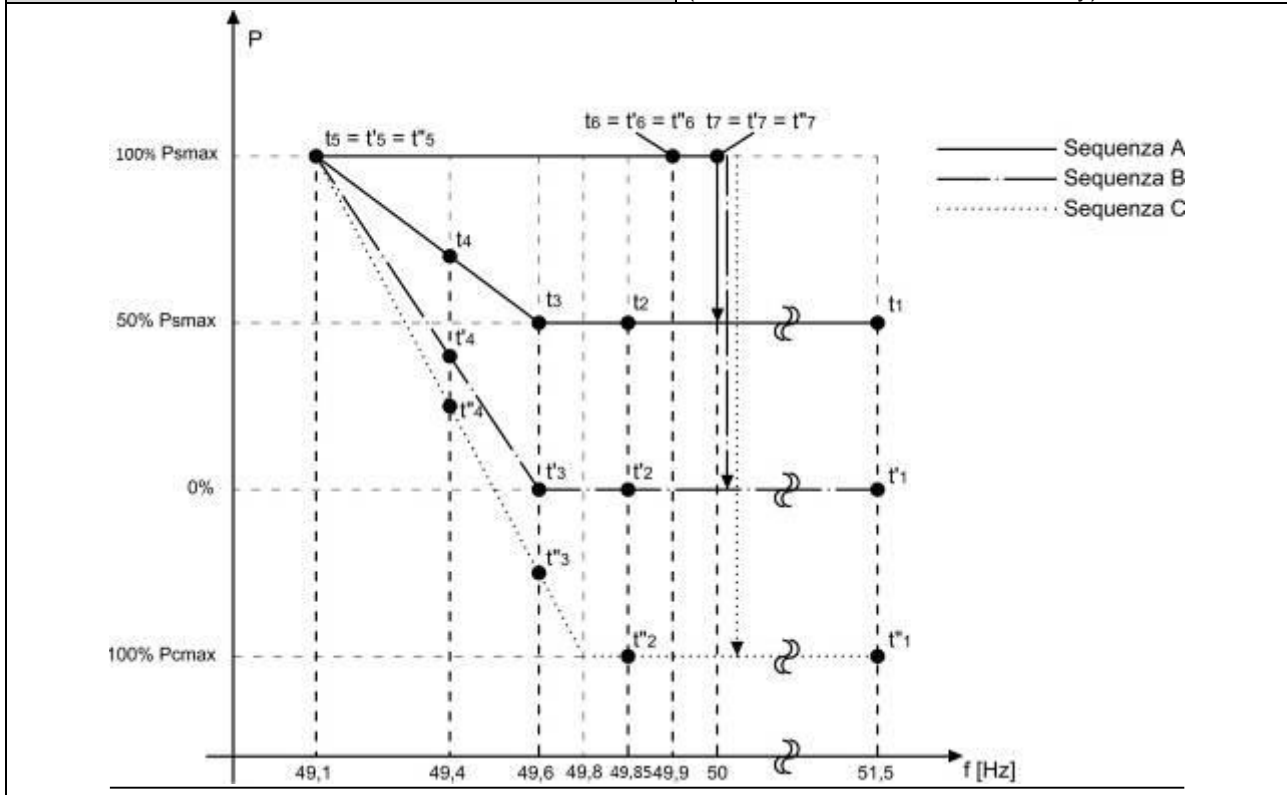
Test at 0% P _S MAX					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _S MAX)	Active Power measured (%P _S MAX)	Deviation (%Sn)	Limit (%Sn)
47.51Hz±0.01Hz	47.51	0.00	1.02	1.02	± 2.5
50.20Hz±0.01Hz	50.20	0.00	1.01	1.01	± 2.5
50.40Hz±0.01Hz	50.40	-15.38	-14.80	0.58	± 2.5
50.60Hz±0.01Hz	50.60	-30.77	-29.04	1.73	± 2.5
51.49Hz±0.01Hz	51.49	-99.23	-99.76	-0.53	± 2.5
50.11Hz±0.01Hz	50.11	-99.23	-99.83	-0.60	± 2.5
50.00Hz±0.01Hz	50.00	0.00	1.06	1.06	± 2.5

Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Increase of Active Power Desired %(P _{mem} -P _{min}) /min	Increase of Active Power Measured %(P _{mem} -P _{min}) /min
≥300	324.3	≤20%	16.43



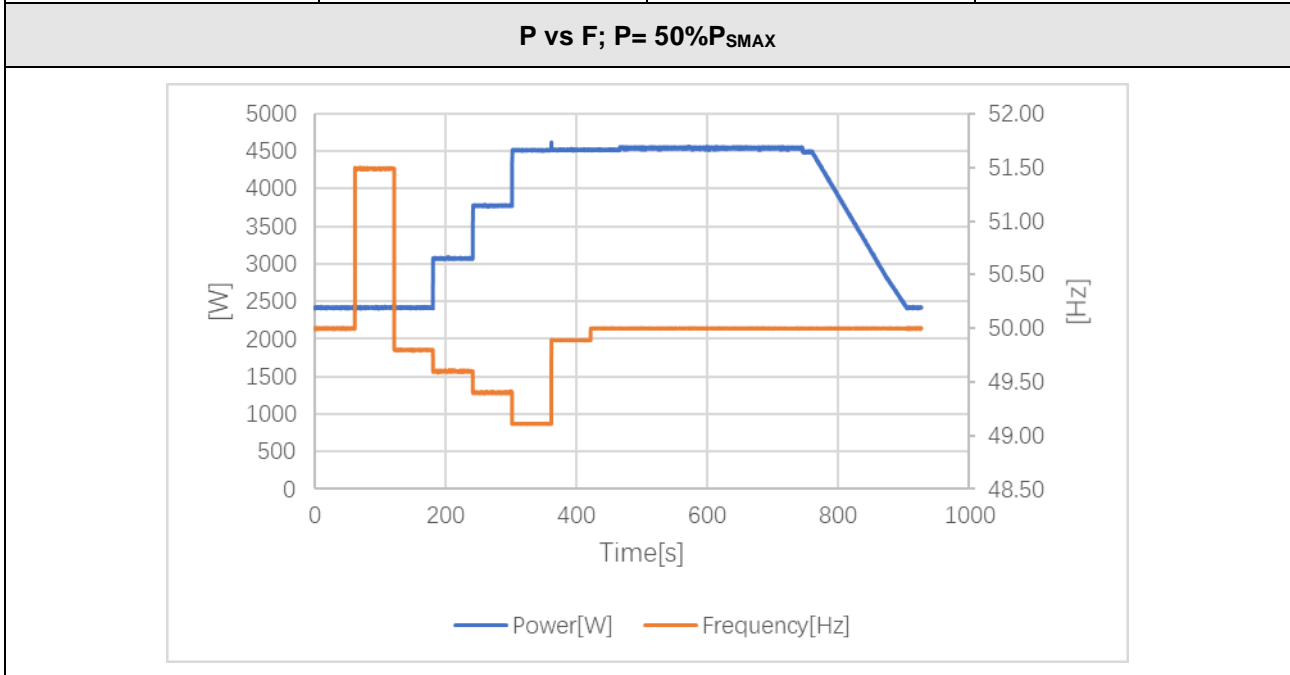
Bbis.7.3	Table:Verification of the automatic increase of the active power in the presence of underfrequency transients on the network	P
-----------------	---	----------

Activation settings.....:	Settable delay from 0s to 1s with step of 50ms (default value: no intentional delay)
---------------------------	--



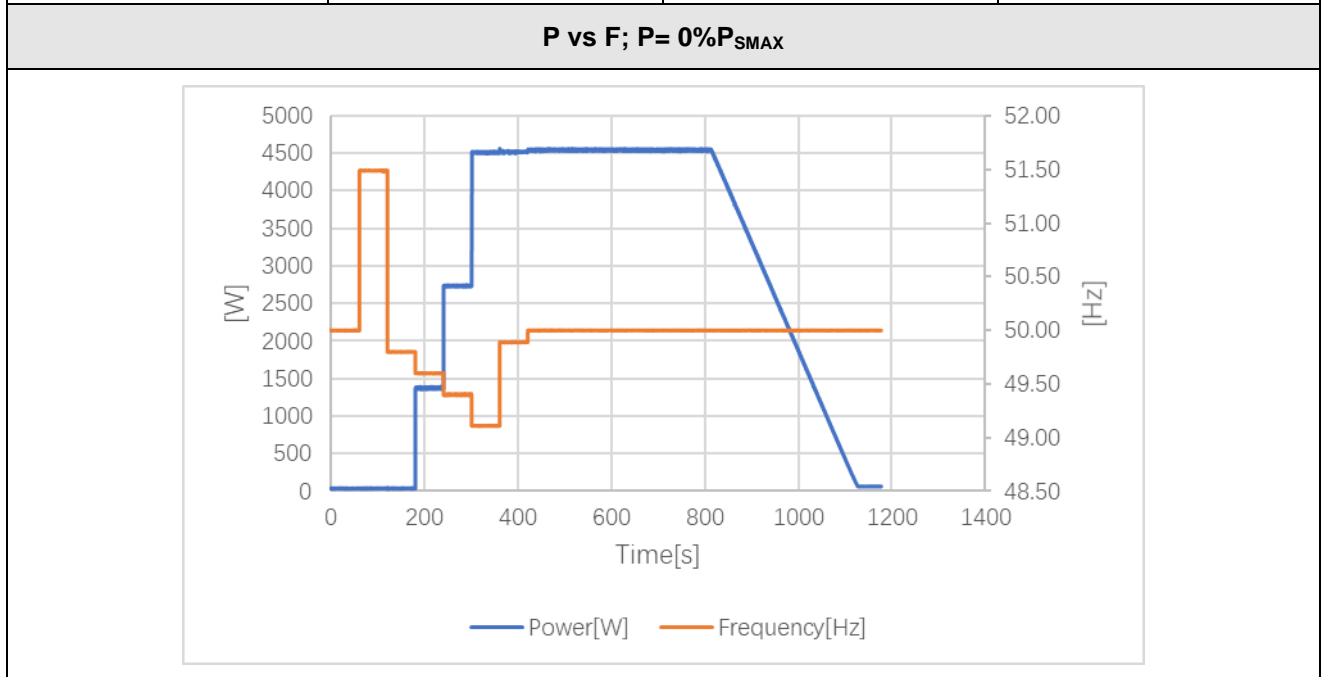
Model: BD6KTL-RL1 tested with battery VT48100E-P1					
Test at 50% P _S MAX					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _S MAX)	Active Power measured (%P _S MAX)	Deviation (%Sn)	Limit (%Sn)
51.49Hz±0.01Hz	51.49	50.00	50.44	0.44	± 2.5
49.80Hz±0.01Hz	49.80	50.00	50.40	0.40	± 2.5
49.60Hz±0.01Hz	49.60	64.29	64.06	-0.23	± 2.5
49.40Hz±0.01Hz	49.40	78.57	78.74	0.17	± 2.5
49.11Hz±0.01Hz	49.11	99.29	94.20	-5.09	± 2.5
49.89Hz±0.01Hz	49.89	99.29	94.18	-5.11	± 2.5
50.00Hz±0.01Hz	50.00	50.00	50.36	0.36	± 2.5

Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Decrease of Active Power Desired % * [P _{mem} -P _{min}] / min	Increase of Active Power Measured % * [P _{mem} -P _{min}] / min
≥300	327.2	≤20%	18.04



Test at 0% P _{S MAX}					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _{S MAX})	Active Power measured (%P _{S MAX})	Deviation (%Sn)	Limit (%Sn)
51.49Hz±0.01Hz	51.49	0.00	0.79	0.79	± 2.5
49.80Hz±0.01Hz	49.80	0.00	0.82	0.82	± 2.5
49.60Hz±0.01Hz	49.60	28.57	28.63	0.06	± 2.5
49.40Hz±0.01Hz	49.40	57.14	56.98	-0.16	± 2.5
49.11Hz±0.01Hz	49.11	98.57	94.22	-4.35	± 2.5
49.89Hz±0.01Hz	49.89	98.57	94.16	-4.41	± 2.5
50.00Hz±0.01Hz	50.00	0.00	1.35	1.35	± 2.5

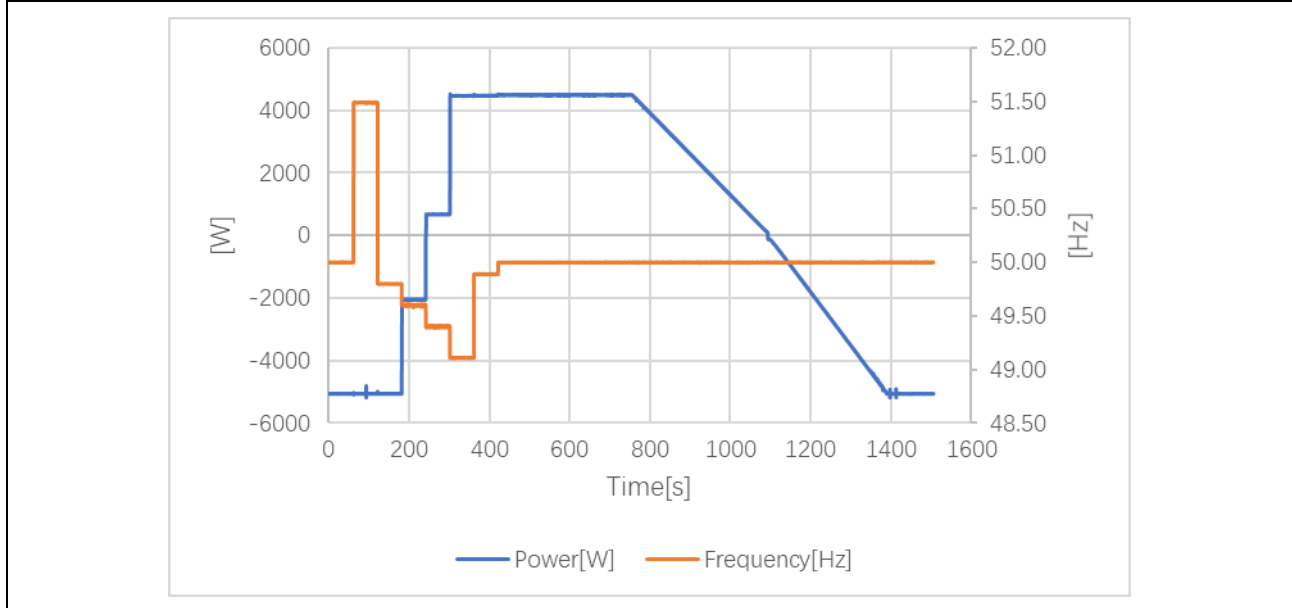
Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Decrease of Active Power Desired % * [P _{mem} -P _{min}] / min	Increase of Active Power Measured % * [P _{mem} -P _{min}] / min
≥300	392.4	≤20%	17.99



Test at 100% P _{C_{MAX}}					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _{S_{MAX}})	Active Power measured (%P _{S_{MAX}})	Deviation (%Sn)	Limit (%Sn)
51.49Hz±0.01Hz	51.49	-100.00	-105.36	-5.36	± 2.5
49.80Hz±0.01Hz	49.80	-100.00	-105.28	-5.28	± 2.5
49.60Hz±0.01Hz	49.60	-42.86	-42.58	0.28	± 2.5
49.40Hz±0.01Hz	49.40	14.29	14.16	-0.13	± 2.5
49.11Hz±0.01Hz	49.11	97.14	92.99	-4.15	± 2.5
49.89Hz±0.01Hz	49.89	97.14	93.23	-3.91	± 2.5
50.00Hz±0.01Hz	50.00	-100.00	-105.30	-5.30	± 2.5

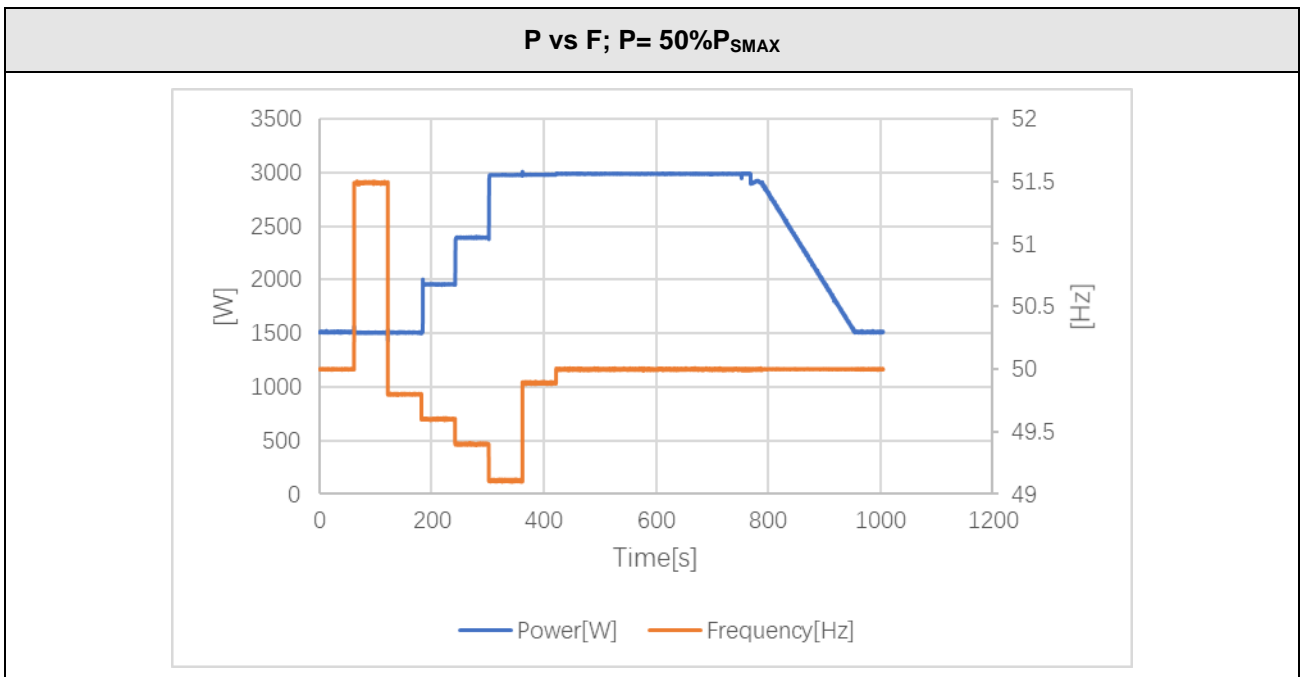
Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Increase of Active Power Desired % (P _{mem} -P _{min}) /min	Increase of Active Power Measured % (P _{mem} -P _{min}) /min
≥300	336.9	≤20%	18.63

P vs F; P= 100%P_{C_{MAX}}



Model: BD3KTL-RL1 tested with battery VT48100E-P1					
Test at 50% P _{SMAX}					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _{SMAX})	Active Power measured (%P _{SMAX})	Deviation (%Sn)	Limit (%Sn)
51.49Hz±0.01Hz	51.49	50.00	50.38	0.38	± 2.5
49.80Hz±0.01Hz	49.80	50.00	50.31	0.31	± 2.5
49.60Hz±0.01Hz	49.60	64.29	65.23	0.94	± 2.5
49.40Hz±0.01Hz	49.40	78.57	79.75	1.18	± 2.5
49.11Hz±0.01Hz	49.11	99.29	99.29	0.00	± 2.5
49.89Hz±0.01Hz	49.89	99.29	99.35	0.06	± 2.5
50.00Hz±0.01Hz	50.00	50.00	50.46	0.46	± 2.5

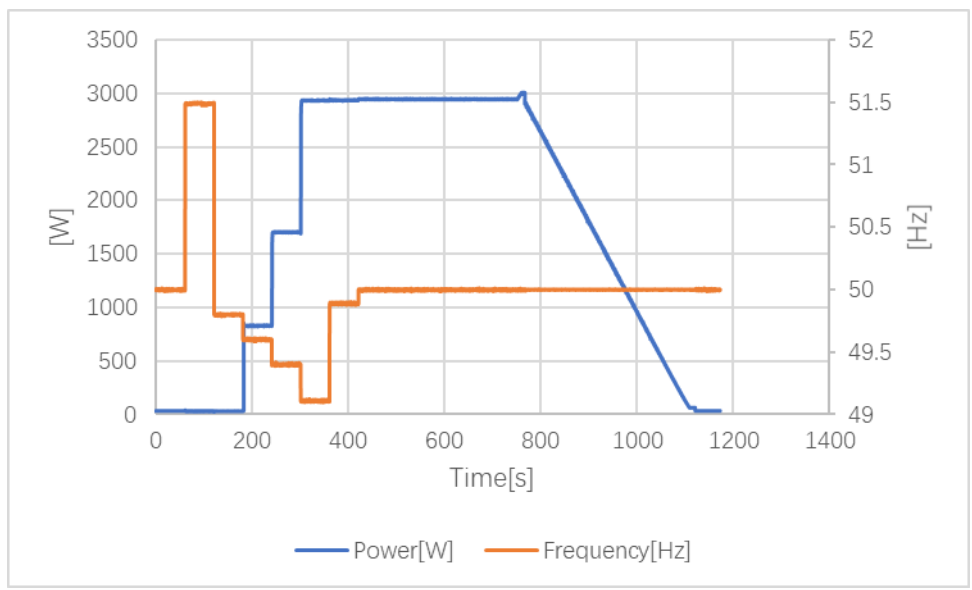
Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Decrease of Active Power Desired % * [P _{mem} -P _{min}] / min	Increase of Active Power Measured % * [P _{mem} -P _{min}] / min
≥300	346.4	≤20%	16.49



Test at 0% P _{S MAX}					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _{S MAX})	Active Power measured (%P _{S MAX})	Deviation (%Sn)	Limit (%Sn)
51.49Hz±0.01Hz	51.49	0.00	1.14	1.14	± 2.5
49.80Hz±0.01Hz	49.80	0.00	1.13	1.13	± 2.5
49.60Hz±0.01Hz	49.60	28.57	27.68	-0.89	± 2.5
49.40Hz±0.01Hz	49.40	57.14	56.75	-0.39	± 2.5
49.11Hz±0.01Hz	49.11	98.57	97.84	-0.73	± 2.5
49.89Hz±0.01Hz	49.89	98.57	97.90	-0.67	± 2.5
50.00Hz±0.01Hz	50.00	0.00	1.15	1.15	± 2.5

Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Increase of Active Power Desired % (P _{mem} -P _{min}) /min	Increase of Active Power Measured % (P _{mem} -P _{min}) /min
≥300	332.6	≤20%	16.78

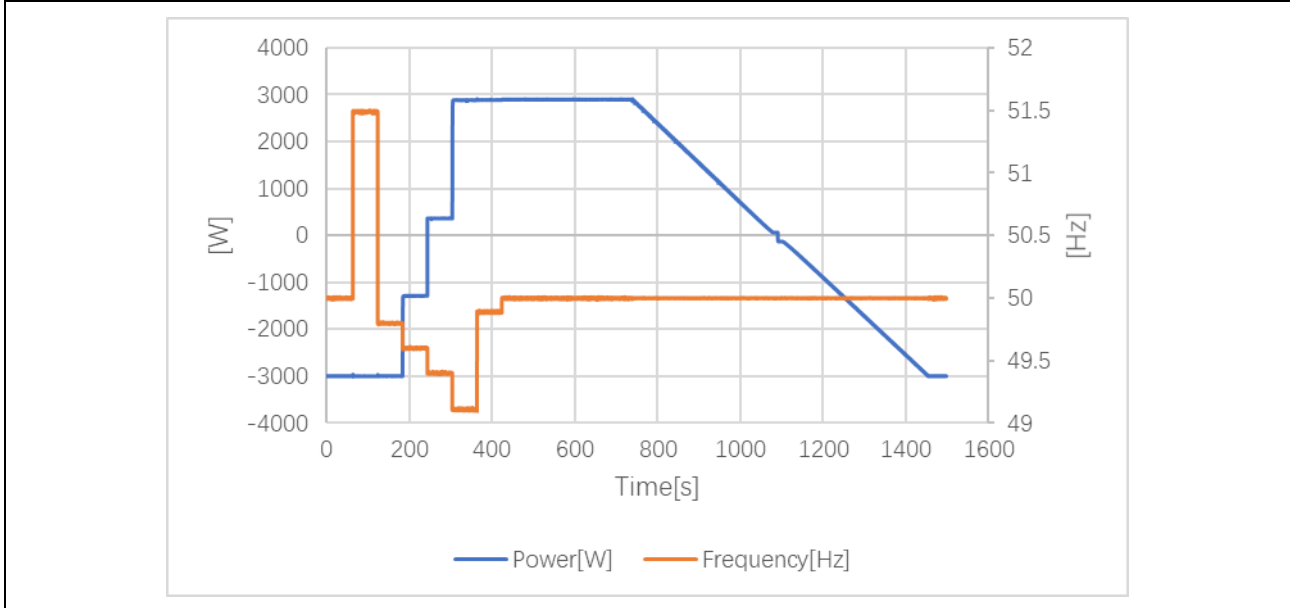
P vs F; P= 0%P_{S MAX}



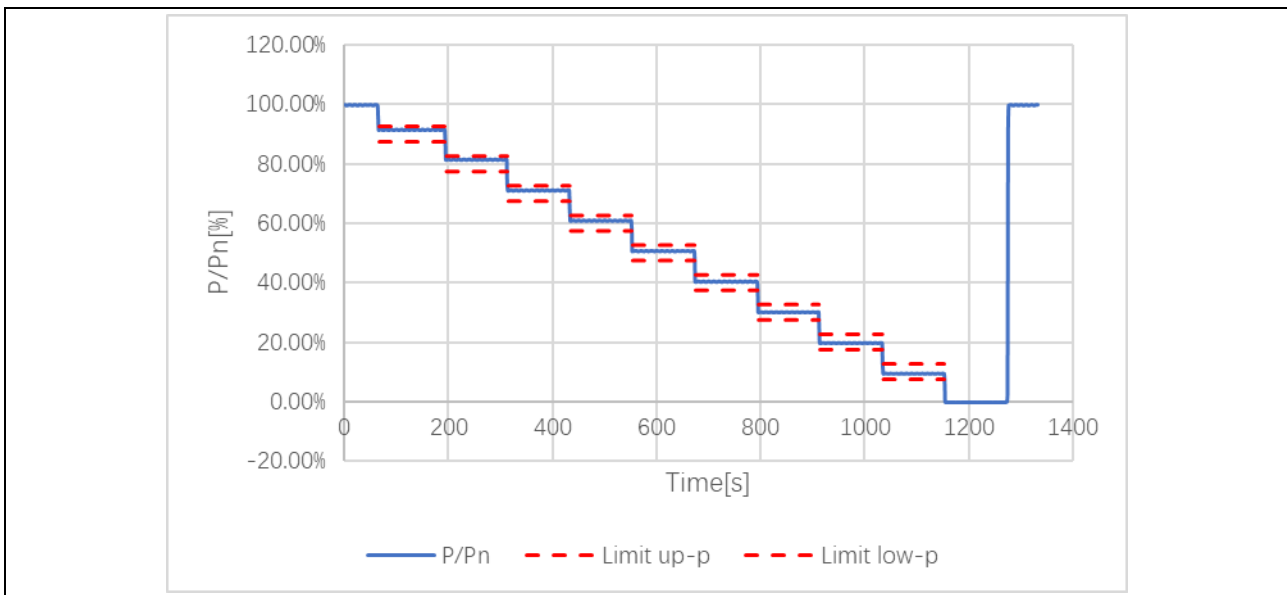
Test at 100% P _{C_{MAX}}					
Set Frequency (Hz)	Measured Frequency (Hz)	Active Power desired (%P _{S_{MAX}})	Active Power measured (%P _{S_{MAX}})	Deviation (%Sn)	Limit (%Sn)
51.49Hz±0.01Hz	51.49	-100.00	-99.88	0.12	± 2.5
49.80Hz±0.01Hz	49.80	-100.00	-99.82	0.18	± 2.5
49.60Hz±0.01Hz	49.60	-42.60	-42.79	-0.19	± 2.5
49.40Hz±0.01Hz	49.40	14.29	12.30	-1.99	± 2.5
49.11Hz±0.01Hz	49.11	97.14	96.16	-0.98	± 2.5
49.89Hz±0.01Hz	49.89	97.14	96.31	-0.83	± 2.5
50.00Hz±0.01Hz	50.00	-100.00	-99.82	0.18	± 2.5

Delay to reconnection Desired (s)	Delay to reconnection Measured (s)	Increase of Active Power Desired %(P _{mem} -P _{min}) /min	Increase of Active Power Measured %(P _{mem} -P _{min}) /min
≥300	314.9	≤20%	16.48

P vs F; P= 100%P_{C_{MAX}}



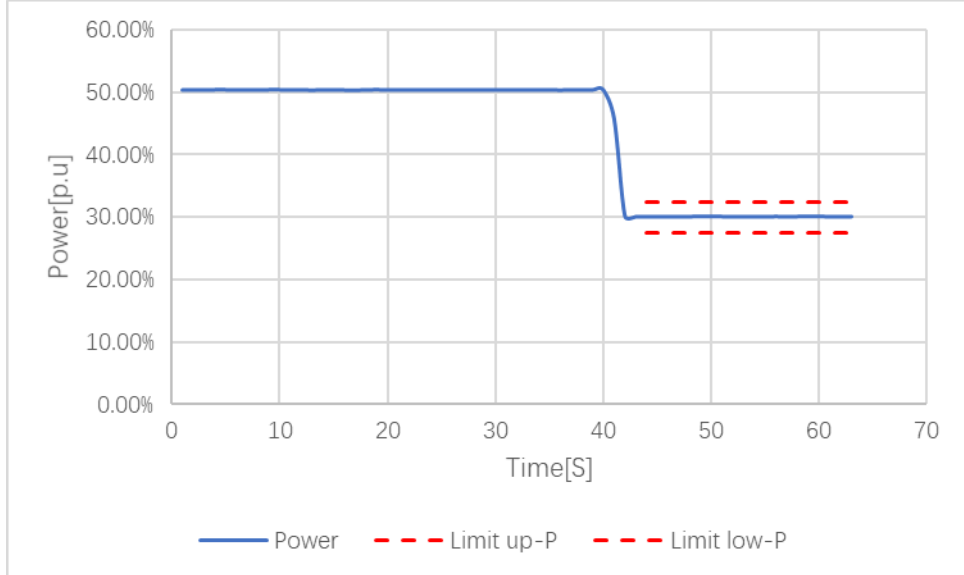
Output Power %	P measured (%)	P set point (%)	Deviation (%Pn)	Limit(%Pn)
100	99.86	100.00	-0.14	--
90	91.52	90.00	1.52	± 2.5
80	81.50	80.00	1.50	± 2.5
70	71.16	70.00	1.16	± 2.5
60	61.00	60.00	1.00	± 2.5
50	50.78	50.00	0.78	± 2.5
40	40.50	40.00	0.50	± 2.5
30	30.23	30.00	0.23	± 2.5
20	19.89	20.00	-0.11	± 2.5
10	9.58	10.00	-0.42	± 2.5
100	99.86	100.00	-0.14	--



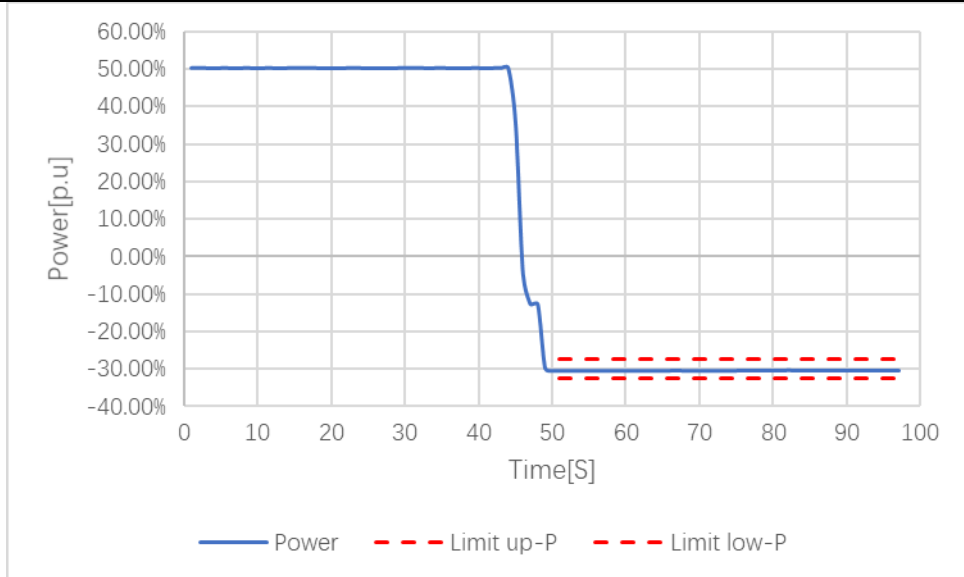
Model	BD6KTL-RL1 tested with battery VT48100E-P1
<p>For bidirectional converters, the standard only specifies two tests (here are also described exclusively in terms of $P_{S_{MAX}}$, as graphics have power expressed in terms of p.u. $P_{S_{MAX}}$):</p> <ul style="list-style-type: none"> • Test 1: Change the set point from 50% $P_{S_{MAX}}$ to 30%$P_{S_{MAX}}$ • Test 2: Change the set point from 50% $P_{S_{MAX}}$ to 30%$P_{C_{MAX}}$ <p>Required accuracy is $\pm 2,5\%$ $P_{S_{MAX}}$.</p>	

Test Nr.	Active Power Desired (% $P_{S_{MAX}}$)	Active Power Measured (% $P_{S_{MAX}}$)	Active Power Deviation (% $P_{S_{MAX}}$)
1	50 to 30	30.10	+0.10
2	50 to -30	-30.36	-0.36

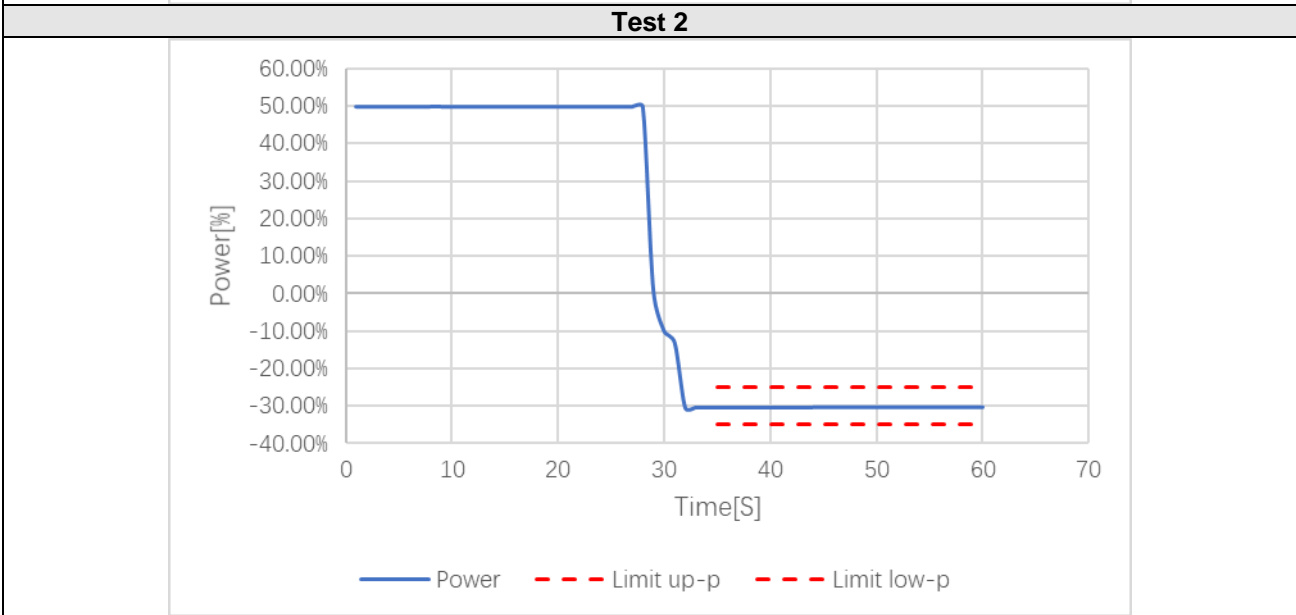
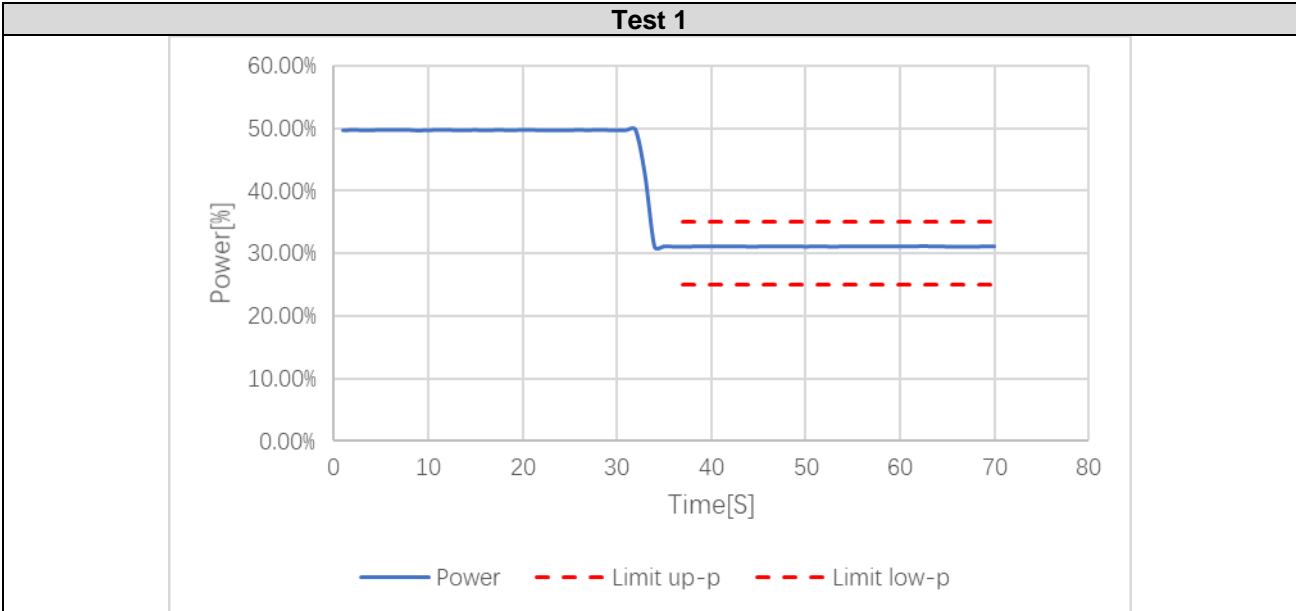
Test 1



Test 2

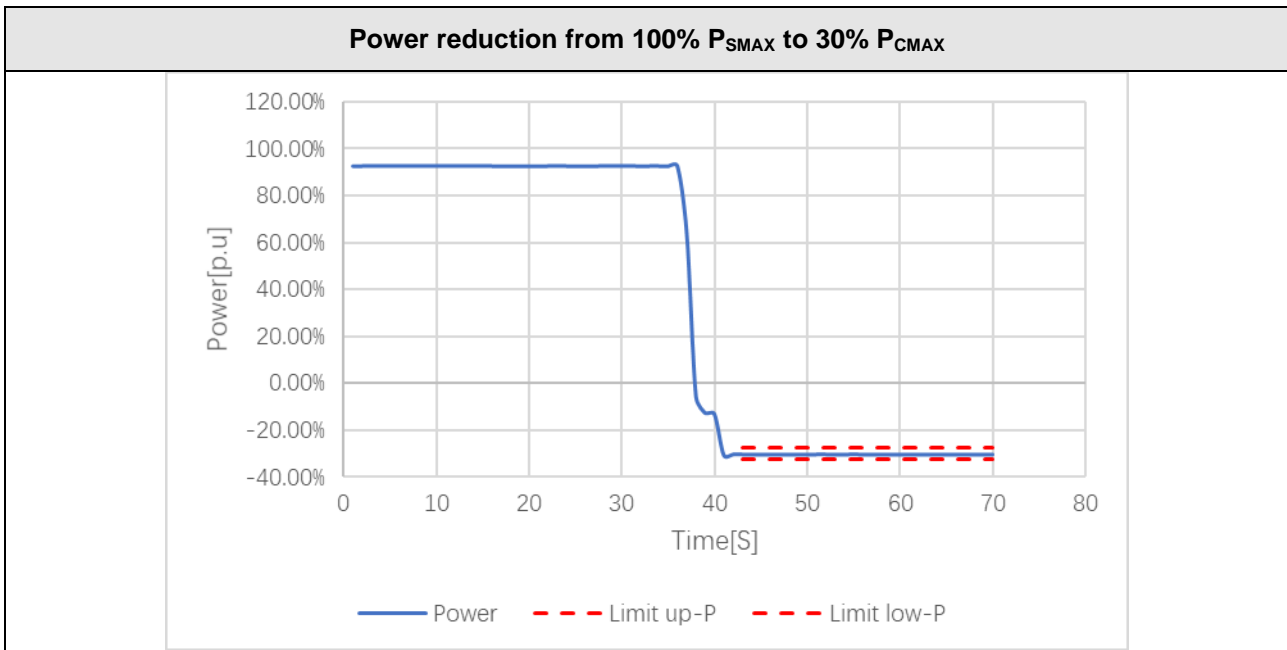


Model: BD3KTL-RL1 tested with battery VT48100E-P1			
Test Nr.	Active Power Desired (%P _{SMAX})	Active Power Measured (%P _{SMAX})	Active Power Deviation (%P _{SMAX})
1	50% to 30%	31.22	+1.22
2	50% to -30%	-30.38	-0.38



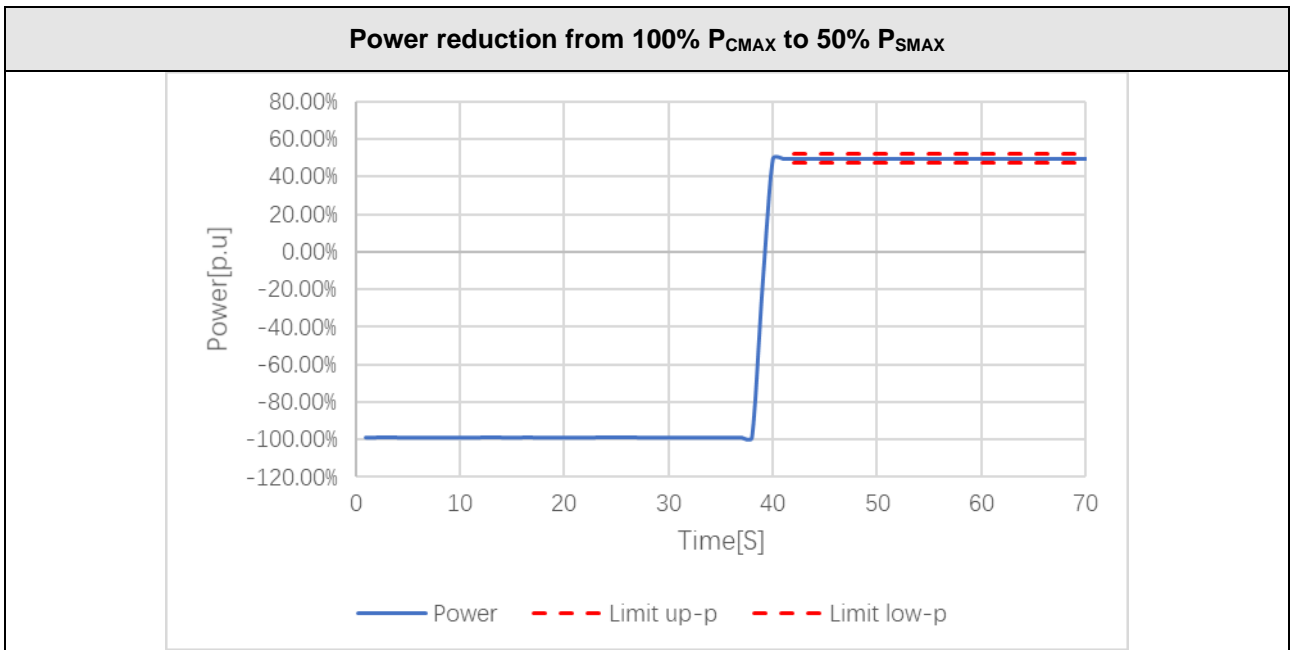
Bbis.7.4.1	TABLE: Verification of the settling time at a power increase / reduction command	P
Model	BD6KTL-RL1 tested with battery VT48100E-P1	
<ul style="list-style-type: none"> • Test 1: Change the set point from 100% P_SMAX to 30% P_SMAX • Test 2: Change the set point from 100% P_SMAX to 30% P_CMAX • Test 3: Change the set point from 0% P_SMAX to 50% P_SMAX • Test 4: Change the set point from 100% P_CMAX to 50% P_SMAX <p>The converter shall be able to reduce from 100%P_SMAX to 30%P_CMAX and to increase from 100%P_CMAX to 50%P_SMAX in less than 50 s.</p> <p>The power is considered stabilized when it enters and remains within a tolerance band of ±2,5%S_n with respect to the new power setting.</p>		

Initial Power (%P _S MAX)	Final Power measured (%P _S MAX)	Final Power required (%P _S MAX)	Final Power deviation (%S _n)	Settling time measured (s)	Settling time required (s)
100	30.19	30	0.19	3.0	< 50
100	-30.38	-30	-0.38	4.0	< 50
0	50.27	50	0.27	3.0	< 50
-100	50.29	50	0.29	4.0	< 50



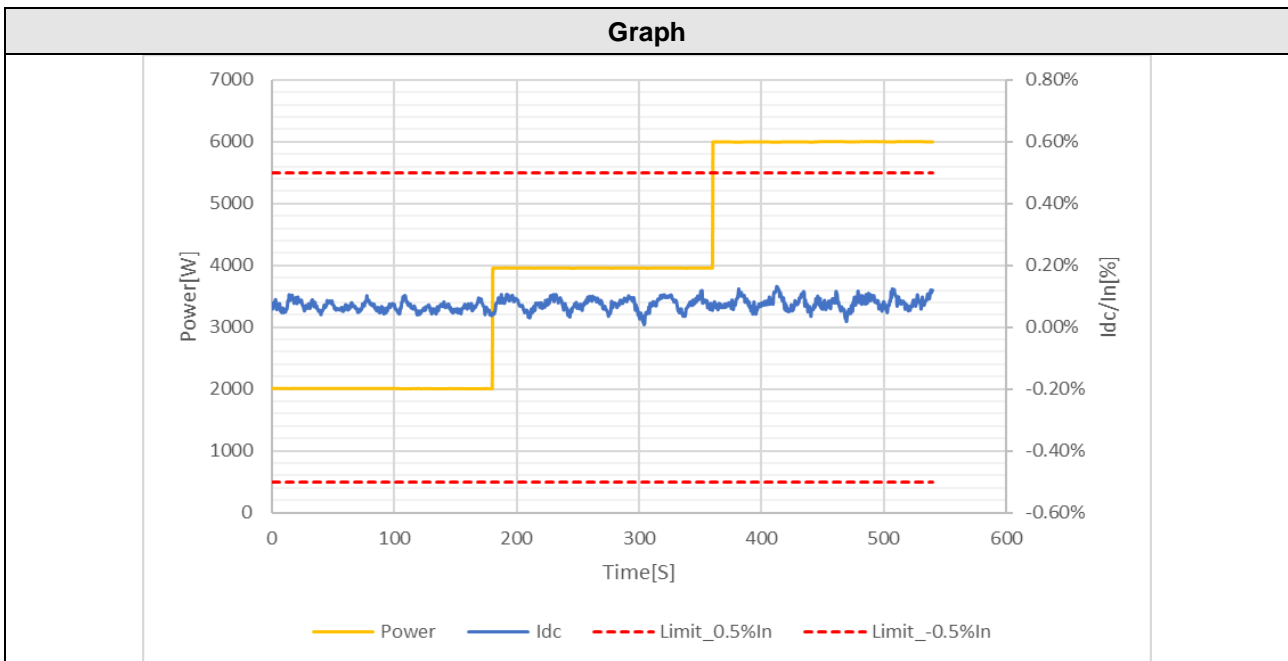
Model	BD3KTL-RL1 tested with battery VT48100E-P1
<ul style="list-style-type: none"> • Test 1: Change the set point from 100% P_SMAX to 30% P_SMAX • Test 2: Change the set point from 100% P_SMAX to 30% P_CMAX • Test 3: Change the set point from 0% P_SMAX to 50% P_SMAX • Test 4: Change the set point from 100% P_CMAX to 50% P_SMAX 	
<p>The converter shall be able to reduce from 100%P_SMAX to 30%P_CMAX and to increase from 100%P_CMAX to 50%P_SMAX in less than 50 s.</p>	
<p>The power is considered stabilized when it enters and remains within a tolerance band of ±2,5%S_n with respect to the new power setting.</p>	

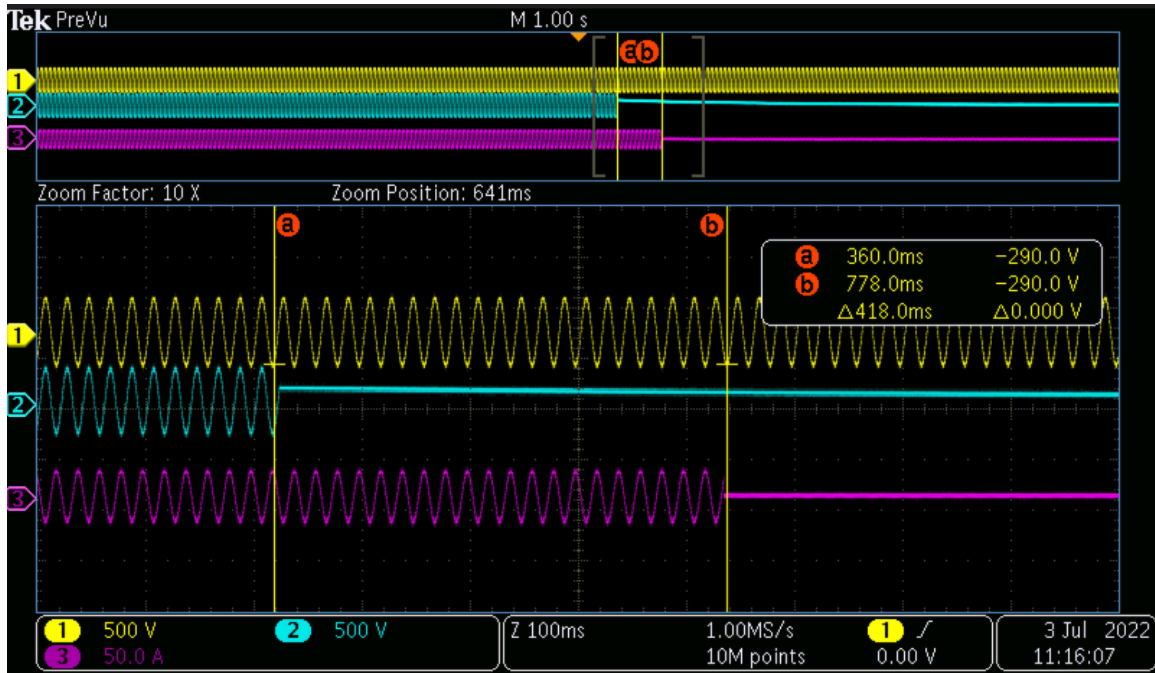
Initial Power (%P _S MAX)	Final Power measured (%P _S MAX)	Final Power required (%P _S MAX)	Final Power deviation (%S _n)	Settling time measured (s)	Settling time required (s)
100	31.20	30	1.20	3.0	< 50
100	-30.50	-30	-0.50	3.0	< 50
0	49.78	50	-0.22	3.0	< 50
-100	49.92	50	-0.08	4.0	< 50



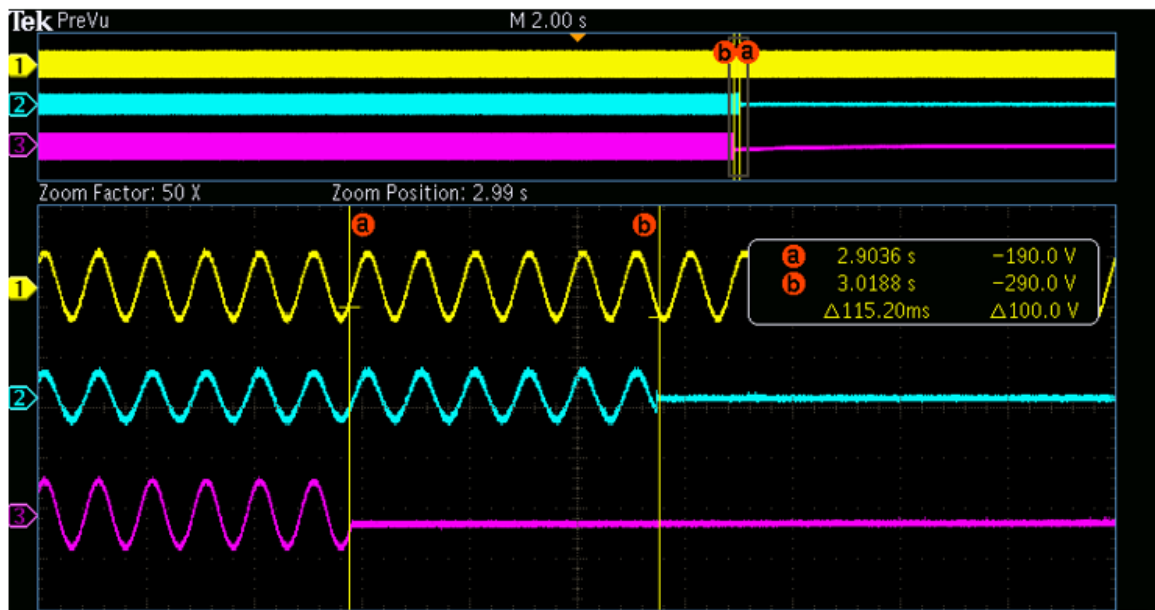
Bbis.8		Table: Checking the DC component output								P
Model : BD6KTL-RL1 tested in PV mode										
Temperature: 25°C										
Power [%Nomin al I VA]	Rated Current [Arms]			D.C component. Value [A]			D.C component. Value [%In]			Limit [%In]
	R	S	T	R	S	T	R	S	T	
33± 5	26.09	--	--	0.0275	--	--	0.11	--	--	0.5%
66± 5	26.09	--	--	0.0307	--	--	0.12	--	--	0.5%
100 ± 5	26.09	--	--	0.0344	--	--	0.13	--	--	0.5%

Bbis.8.2		TABLE: Check of protections against the DC current injection.								P	
Power [%nomina l VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	$I_{dc} >$		
33± 5	1966	230	1.00	26.09	--	--	0.285	1.09	0.5% In	403.0	1
66± 5	3959	230	1.00	26.09	--	--	0.270	1.03	0.5% In	418.0	1
100 ± 5	5947	230	1.00	26.09	--	--	0.356	1.36	0.5% In	412.0	1
Power [%nomina l VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	$I_{dc} >>$		
33± 5	1980	230	1.00	26.09	--	--	1.874	7.18	1A	111.2	0.2
66± 5	3960	230	1.00	26.09	--	--	3.397	13.02	1A	115.2	0.2
100 ± 5	6000	230	1.00	26.09	--	--	5.123	19.64	1A	112.0	0.2





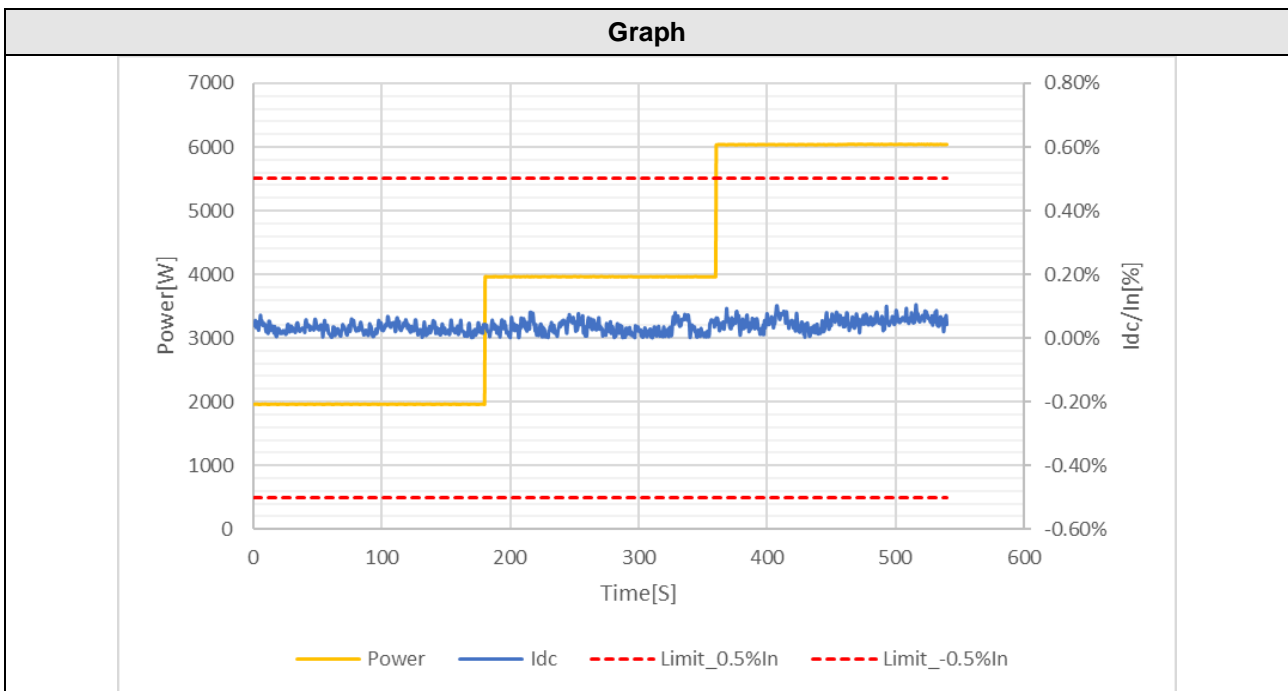
DC current injection more than 0.5%In

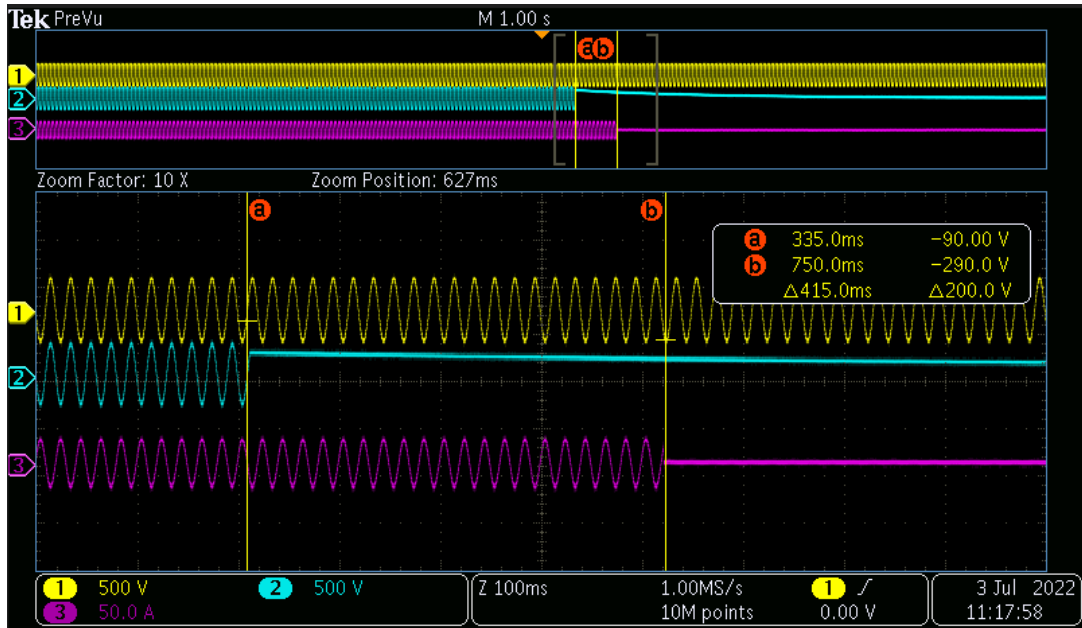


DC current injection more than 1A

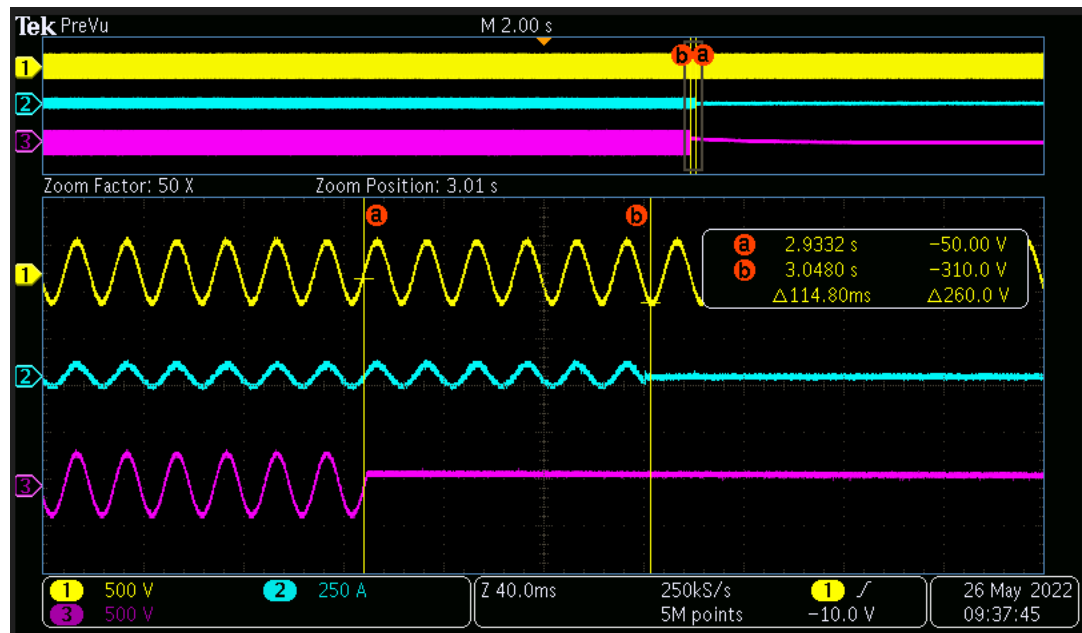
Bbis.8		Table: Checking the DC component output									P
Temperature: 55°C											
Power [%Nominal I VA]	Rated Current [Arms]			D.C component. Value [A]			D.C component. Value [%In]			Limit [%In]	
	R	S	T	R	S	T	R	S	T		
33± 5	26.09	--	--	0.0189	--	--	0.07	--	--	0.5%	
66± 5	26.09	--	--	0.0215	--	--	0.08	--	--	0.5%	
100 ± 5	26.09	--	--	0.0277	--	--	0.11	--	--	0.5%	

Bbis.8.2		TABLE: Check of protections against the DC current injection.									P
Power [%nominal I VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	I _{dc} >		
33± 5	1966	230	1.00	26.09	--	--	0.887	3.40	0.5% In	405.0	1
66± 5	3960	230	1.00	26.09	--	--	0.611	2.34	0.5% In	415.0	1
100 ± 5	5949	230	1.00	26.09	--	--	0.838	3.21	0.5% In	397.0	1
Power [%nominal I VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	I _{dc} >>		
33± 5	1920	230	1.00	26.09	--	--	2.360	1.45	1A	114.8	0.2
66± 5	3915	230	1.00	26.09	--	--	1.727	1.43	1A	110.4	0.2
100 ± 5	6000	230	1.00	26.09	--	--	5.330	20.43	1A	108.0	0.2





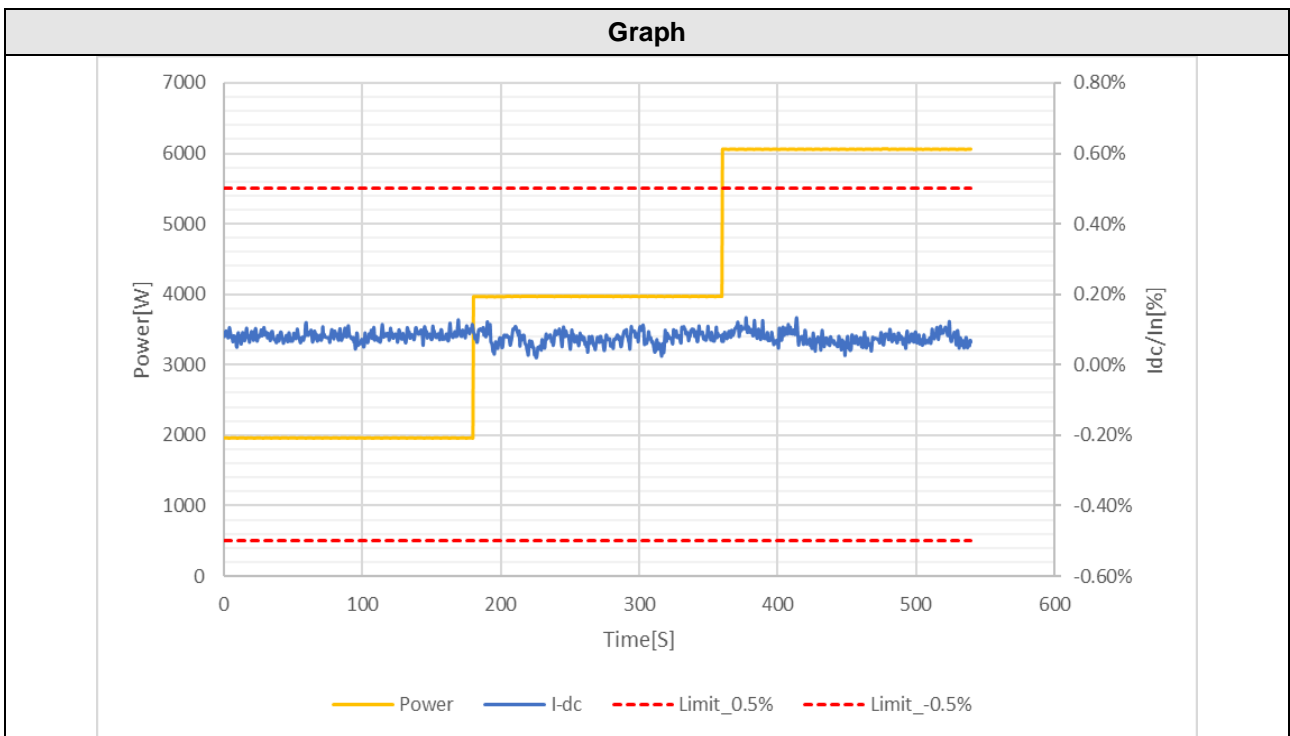
DC current injection more than 0.5%In

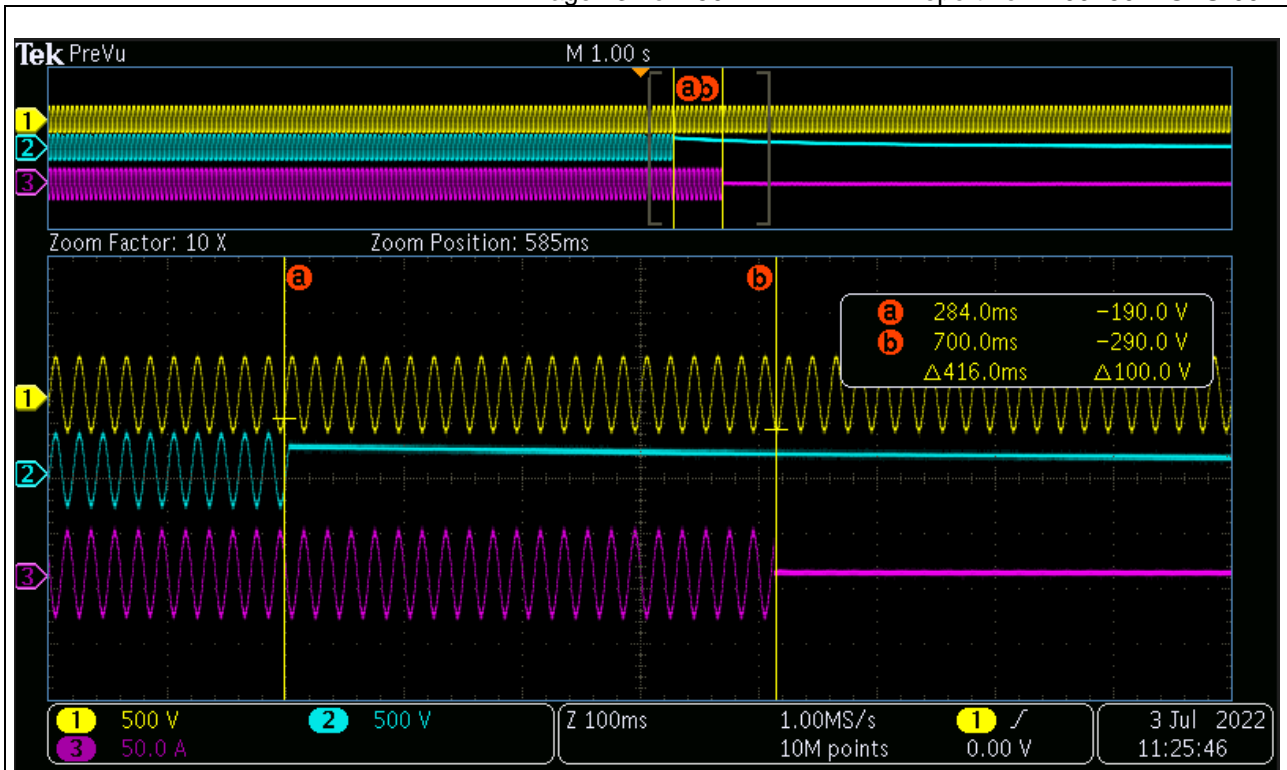


DC current injection more than 1A

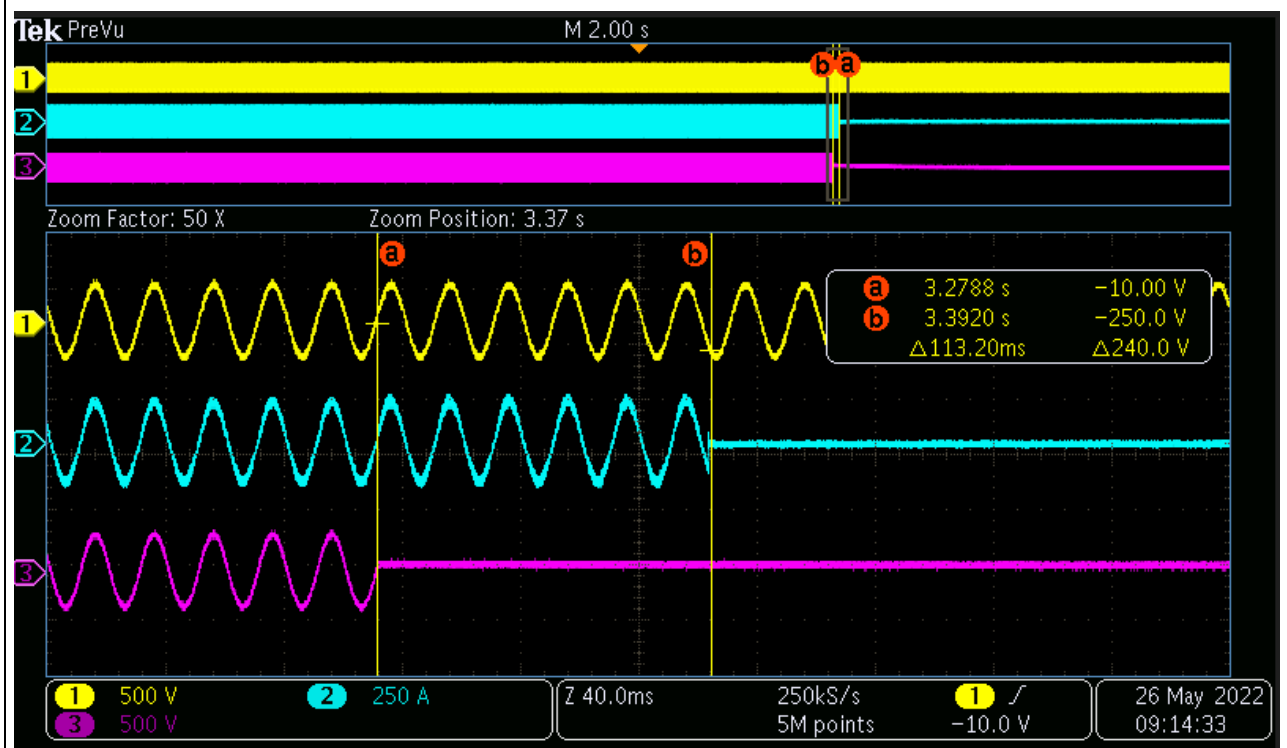
Bbis.8		Table: Checking the DC component output								P
Temperature: -10°C										
Power [%Nomin al I VA]	Rated Current [Arms]			D.C component. Value [A]			D.C component. Value [%In]			Limit [%In]
	R	S	T	R	S	T	R	S	T	
33± 5	26.09	--	--	0.0334	--	--	0.13	--	--	0.5%
66± 5	26.09	--	--	0.0319	--	--	0.12	--	--	0.5%
100 ± 5	26.09	--	--	0.0351	--	--	0.13	--	--	0.5%

Bbis.8.2		TABLE: Check of protections against the DC current injection.								P	
Power [%nomina l VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	I _{dc} >		
33± 5	1966	230	1.00	26.09	--	--	0.791	3.03	0.5% In	402.0	1
66± 5	3962	230	1.00	26.09	--	--	0.887	3.40	0.5% In	413.0	1
100 ± 5	5949	230	1.00	26.09	--	--	0.556	2.13	0.5% In	416.0	1
Power [%nomina l VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	I _{dc} >>		
33± 5	1980	230	1.00	26.09	--	--	1.642	6.29	1A	112.0	0.2
66± 5	3911	230	1.00	26.09	--	--	1.612	6.18	1A	113.2	0.2
100 ± 5	5929	230	1.00	26.09	--	--	1.711	6.56	1A	113.2	0.2





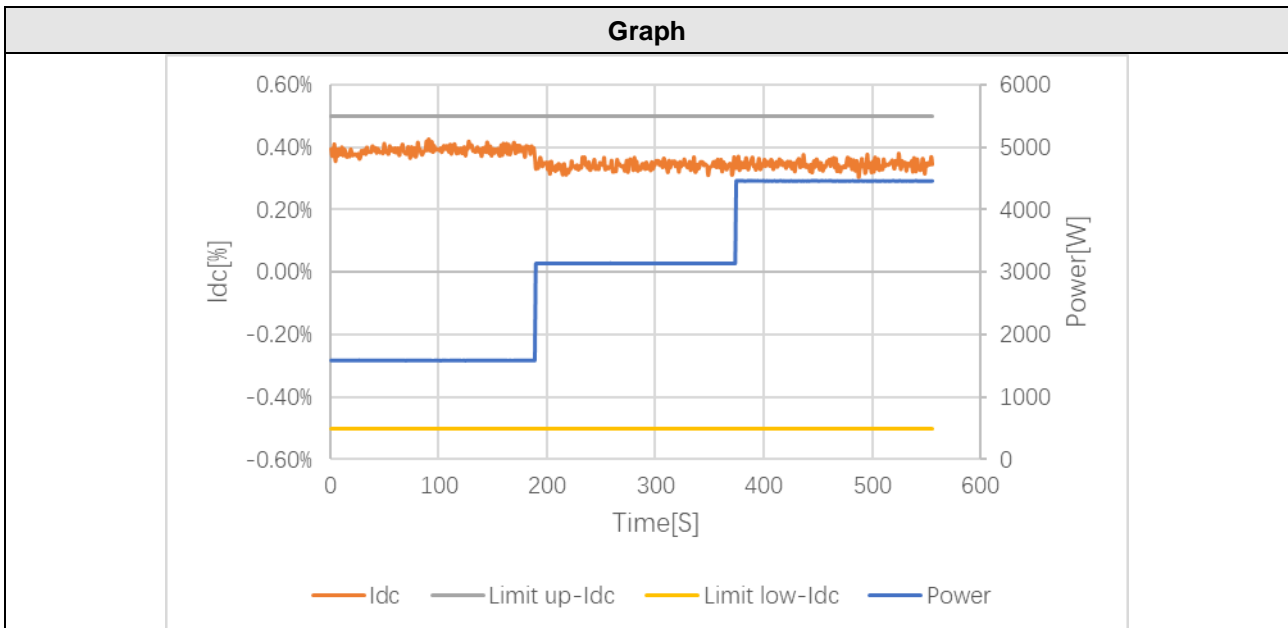
DC current injection more than 0.5%In

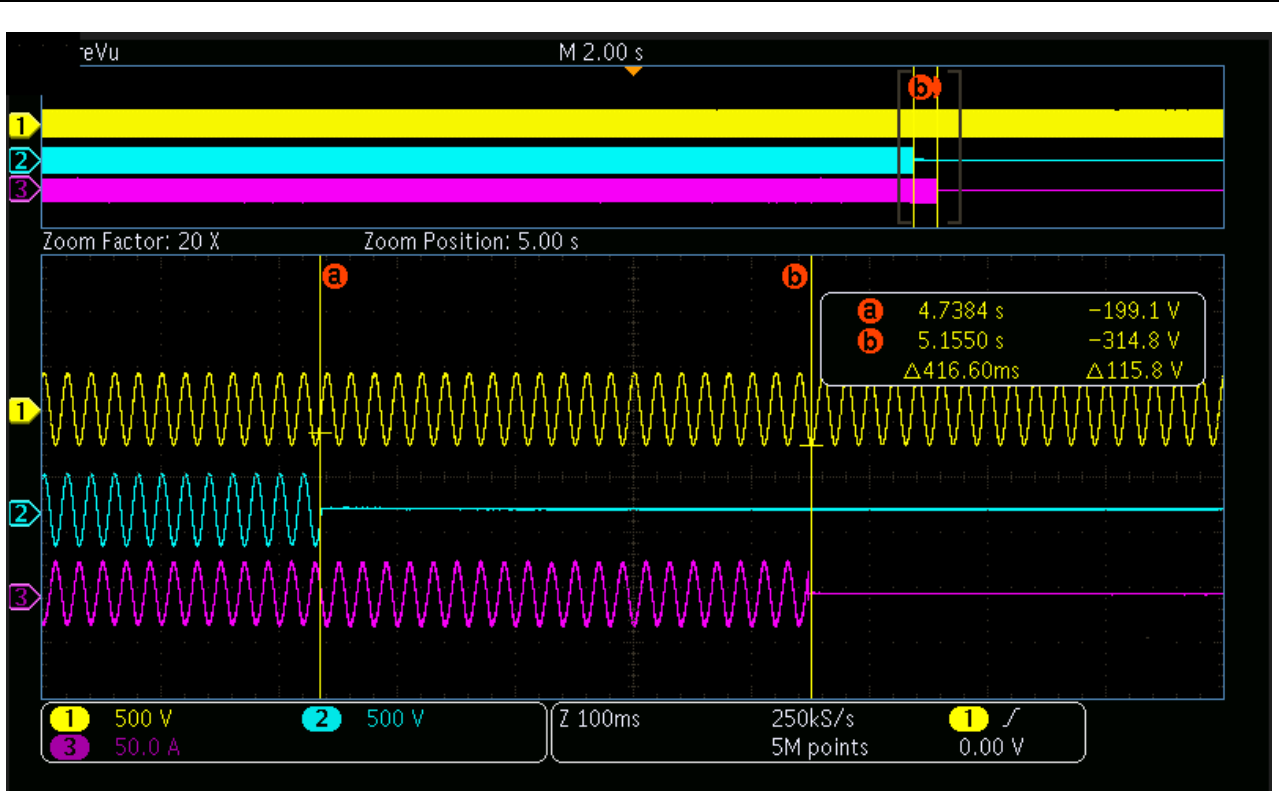


DC current injection more than 1A

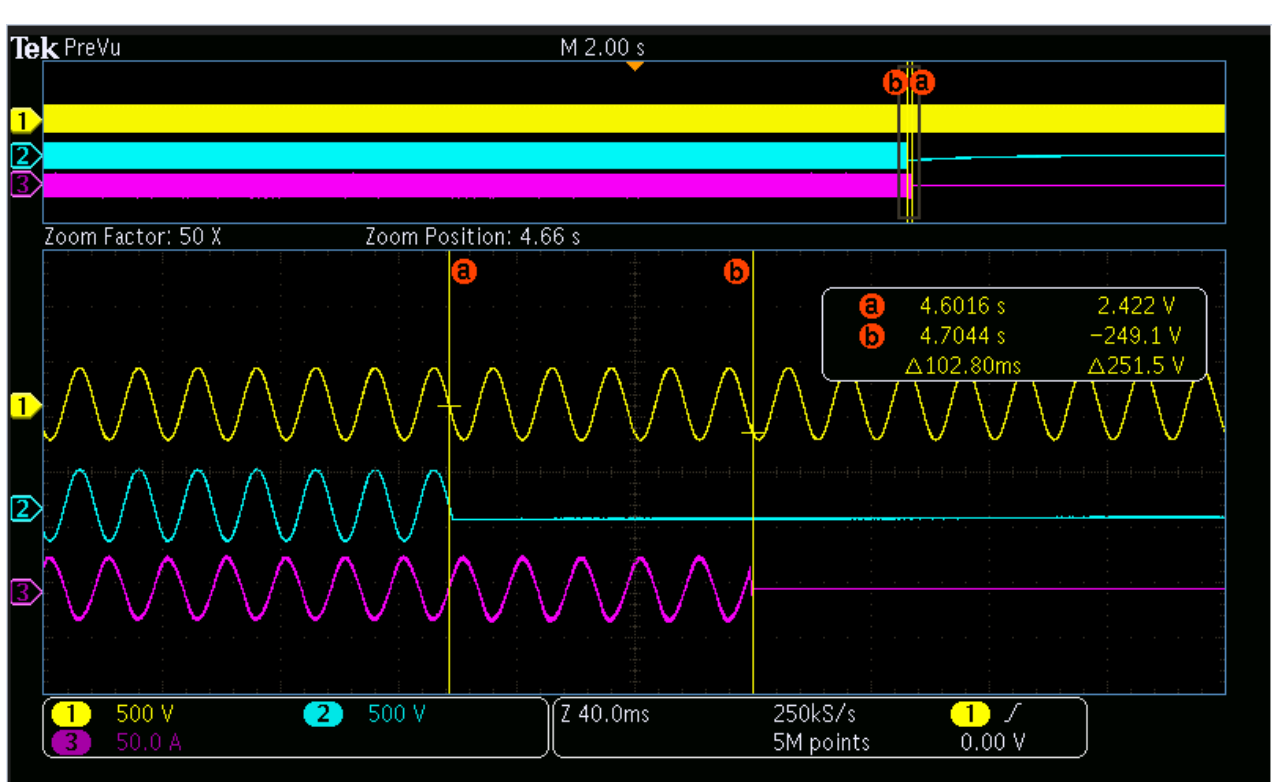
Bbis.8	Table: Checking the DC component output									P
Model: BD6KTL-RL1 tested with battery VT48100E-P1, discharging										
Temperature: 25°C										
Power [%Nominal I VA]	Rated Current [Arms]			D.C component. Value [A]			D.C component. Value [%In]			Limit [%In]
	R	S	T	R	S	T	R	S	T	
33± 5	26.09	--	--	0.0887	--	--	0.340	--	--	0.5%
66± 5	26.09	--	--	0.0769	--	--	0.295	--	--	0.5%
100 ± 5	26.09	--	--	0.0793	--	--	0.304	--	--	0.5%

Bbis.8.2	TABLE: Check of protections against the DC current injection.										P
Power [%nominal I VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	$I_{dc} >$		
33± 5	1584	230	1.00	26.09	--	--	0.587	2.250	0.5% In	410.0	1
66± 5	3168	230	1.00	26.09	--	--	0.608	2.330	0.5% In	404.0	1
100 ± 5	4800	230	1.00	26.09	--	--	0.624	2.392	0.5% In	416.6	1
Power [%nominal I VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	$I_{dc} >>$		
33± 5	1584	230	1.00	26.09	--	--	1.788	6.853	1A	102.6	0.2
66± 5	3168	230	1.00	26.09	--	--	1.848	7.083	1A	102.8	0.2
100 ± 5	4800	230	1.00	26.09	--	--	1.407	5.393	1A	102.8	0.2





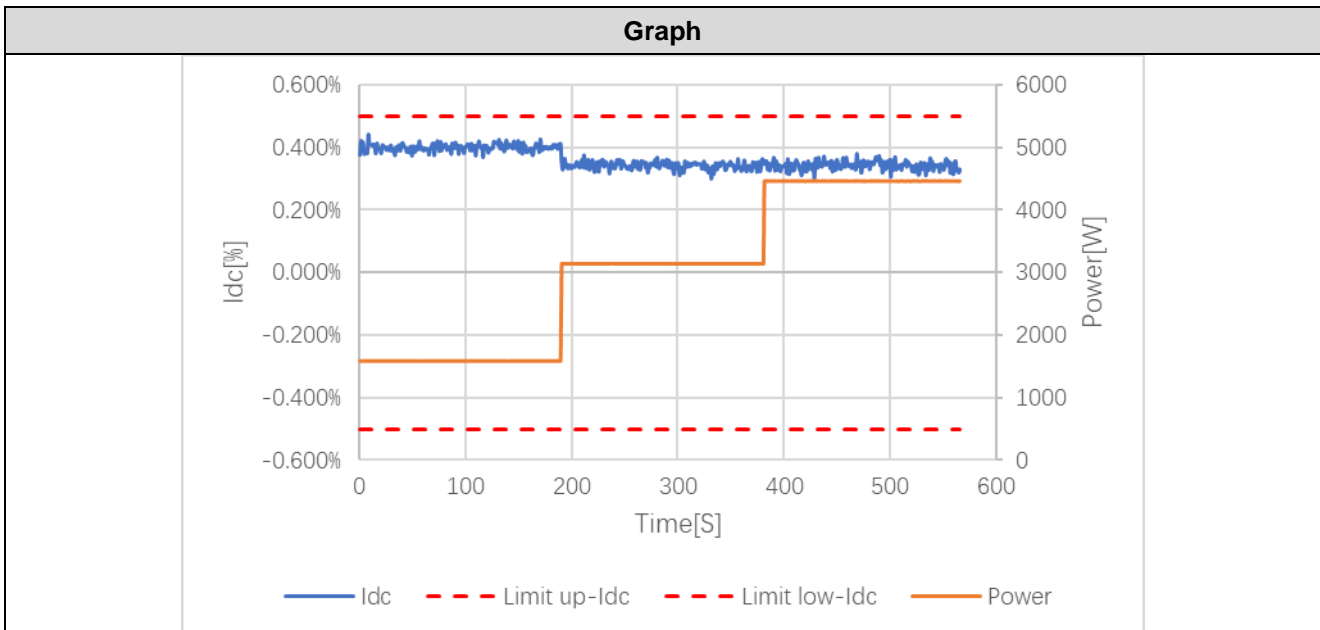
DC current injection more than 0.5%In

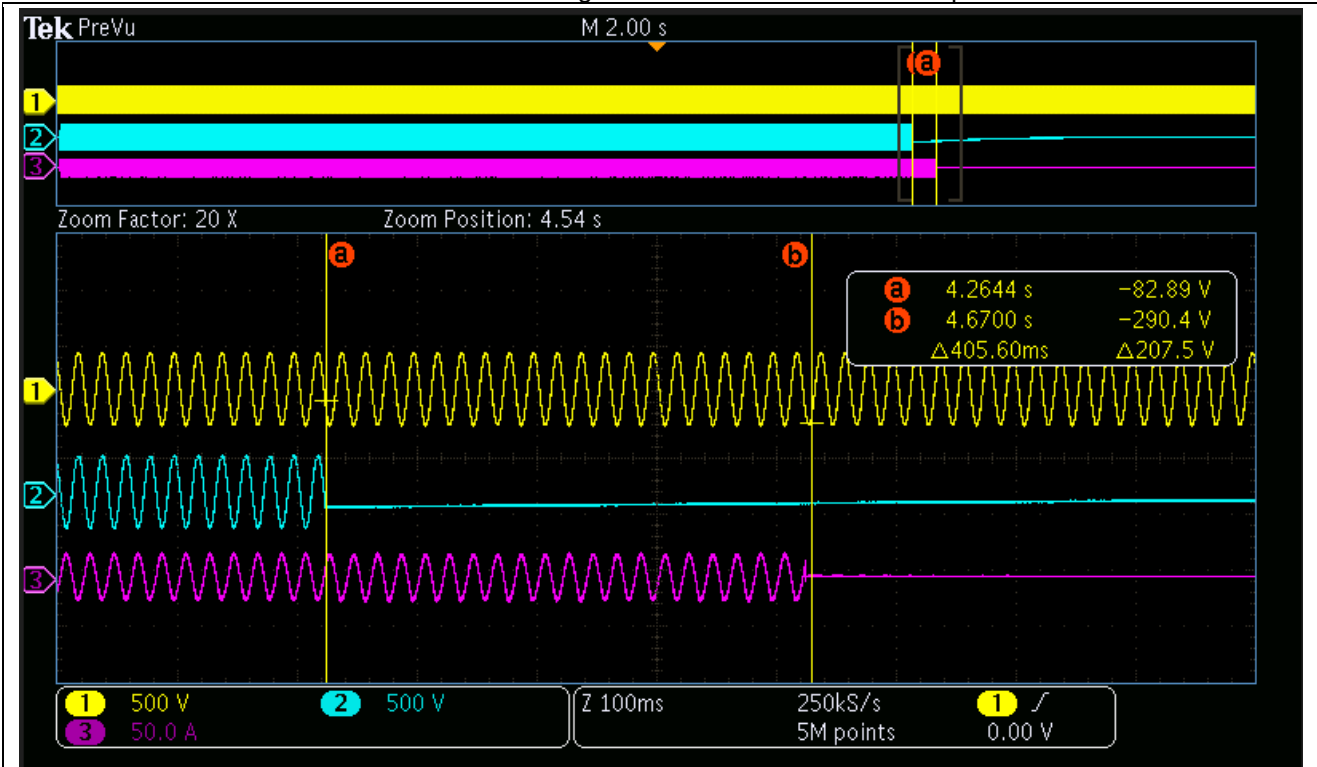


DC current injection more than 1A

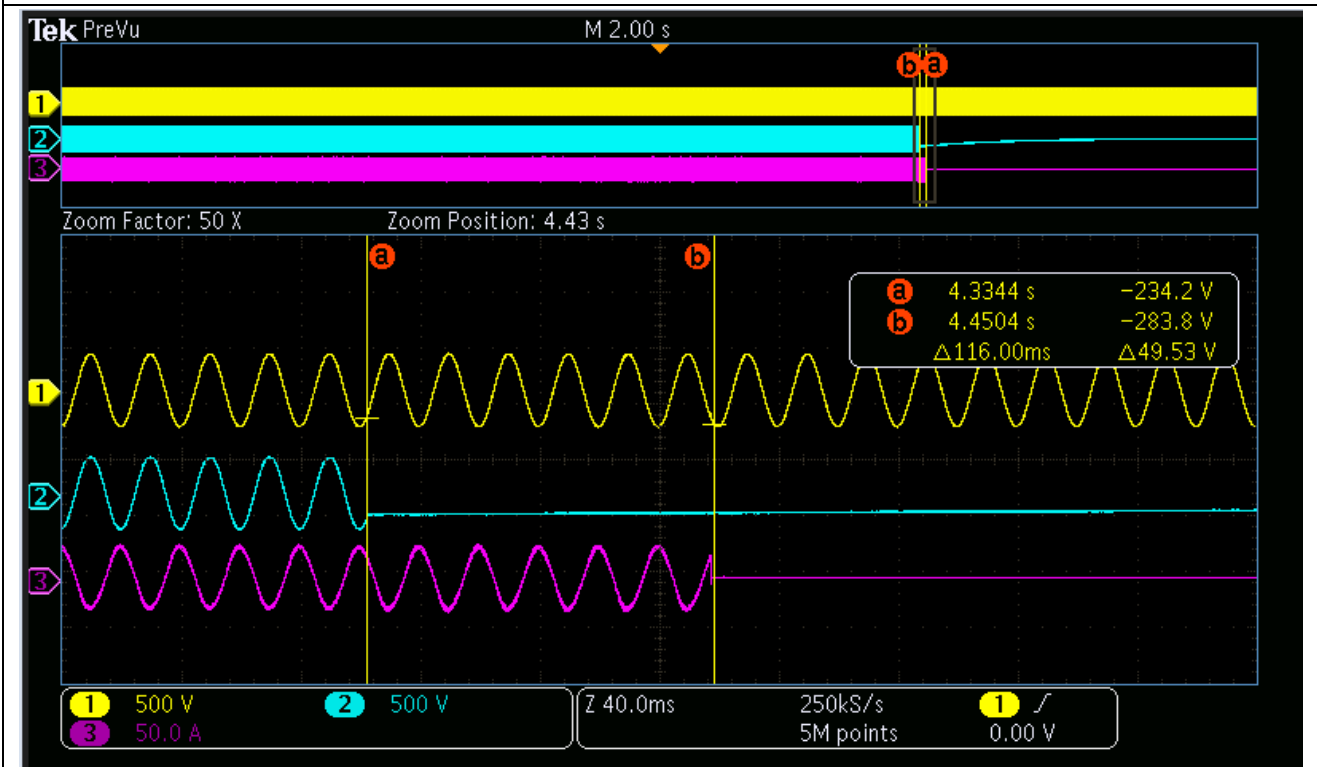
Bbis.8		Table: Checking the DC component output								P
Temperature: 55°C										
Power [%Nomin al I VA]	Rated Current [Arms]			D.C component. Value [A]			D.C component. Value [%In]			Limit [%In]
	R	S	T	R	S	T	R	S	T	
33± 5	26.09	--	--	0.0923	--	--	0.354	--	--	0.5%
66± 5	26.09	--	--	0.0785	--	--	0.301	--	--	0.5%
100 ± 5	26.09	--	--	0.0795	--	--	0.305	--	--	0.5%

Bbis.8.1		TABLE: Check of protections against the DC current injection.								P	
Power [%nomina l VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	$I_{dc} >$		
33± 5	1584	230	1.00	26.09	--	--	0.8265	3.168	0.5% In	399.0	1
66± 5	3168	230	1.00	26.09	--	--	0.6483	2.485	0.5% In	405.6	1
100 ± 5	4800	230	1.00	26.09	--	--	0.7668	2.939	0.5% In	404.6	1
Power [%nomina l VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	$I_{dc} >>$		
33± 5	1584	230	1.00	26.09	--	--	1.5662	6.003	1A	114.2	0.2
66± 5	3168	230	1.00	26.09	--	--	1.7708	6.787	1A	109.2	0.2
100 ± 5	4800	230	1.00	26.09	--	--	1.6287	6.243	1A	116.0	0.2





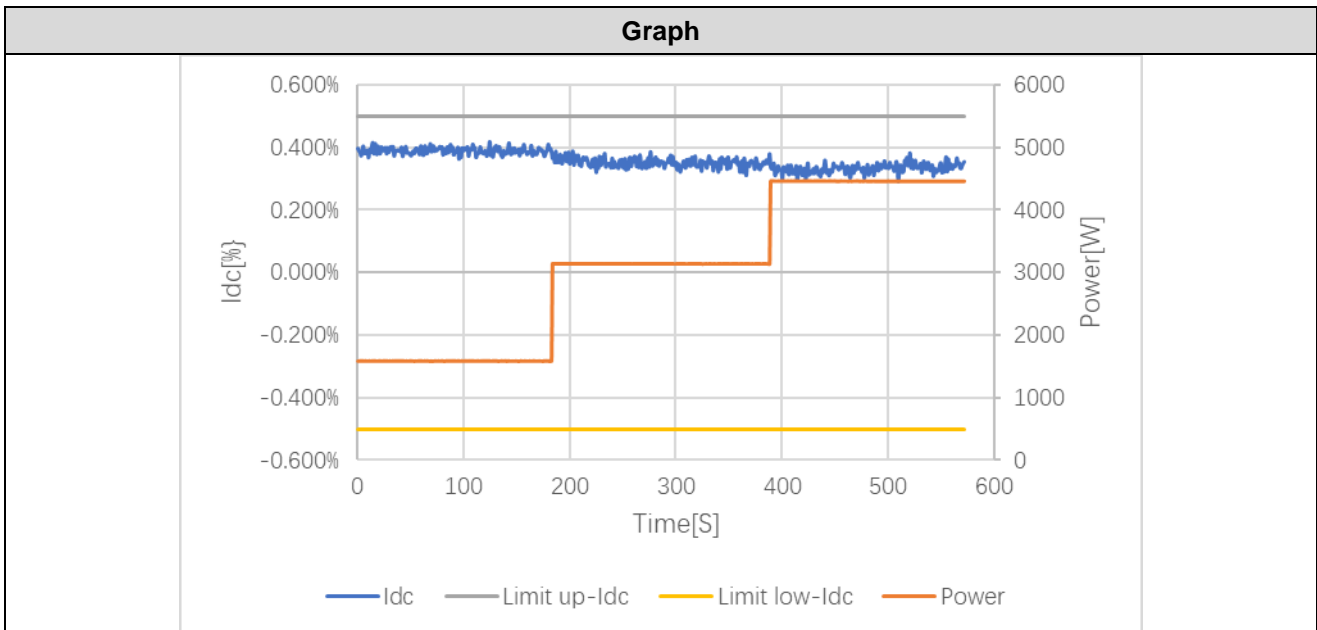
DC current injection more than 0.5%In

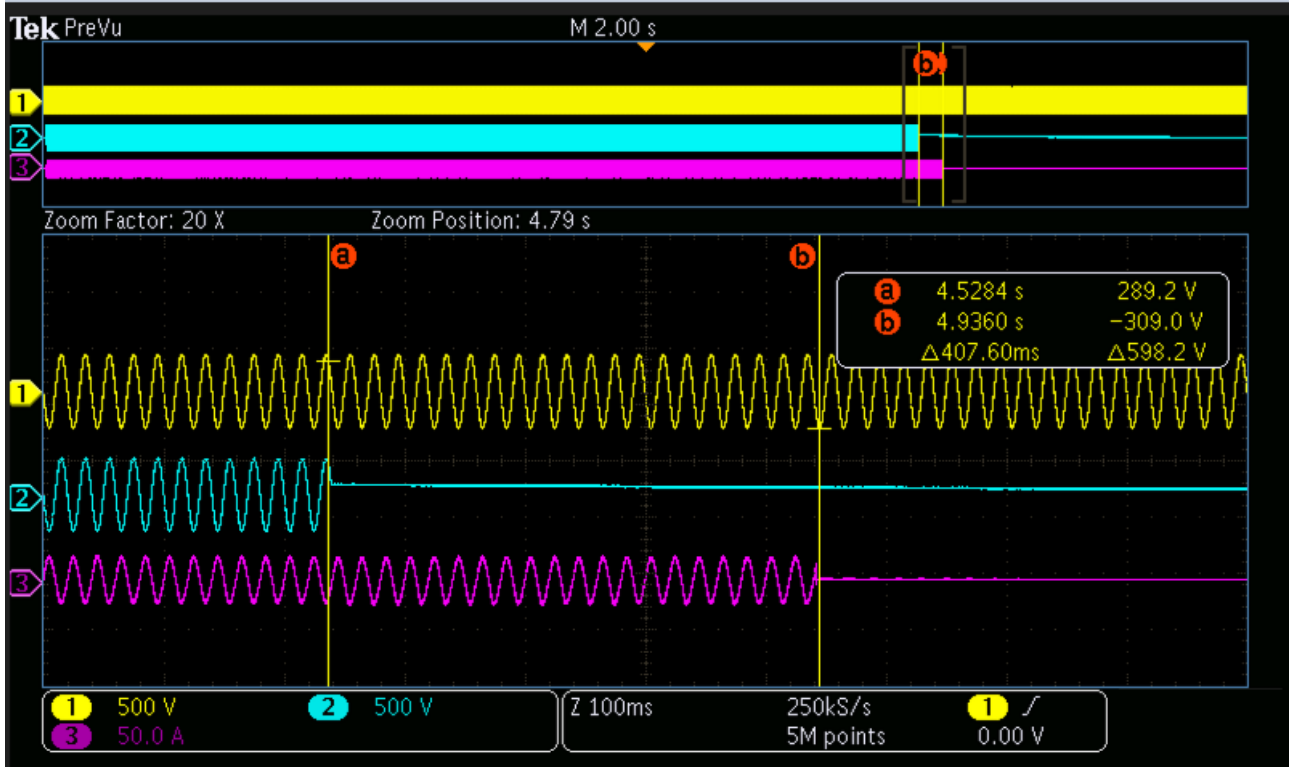


DC current injection more than 1A

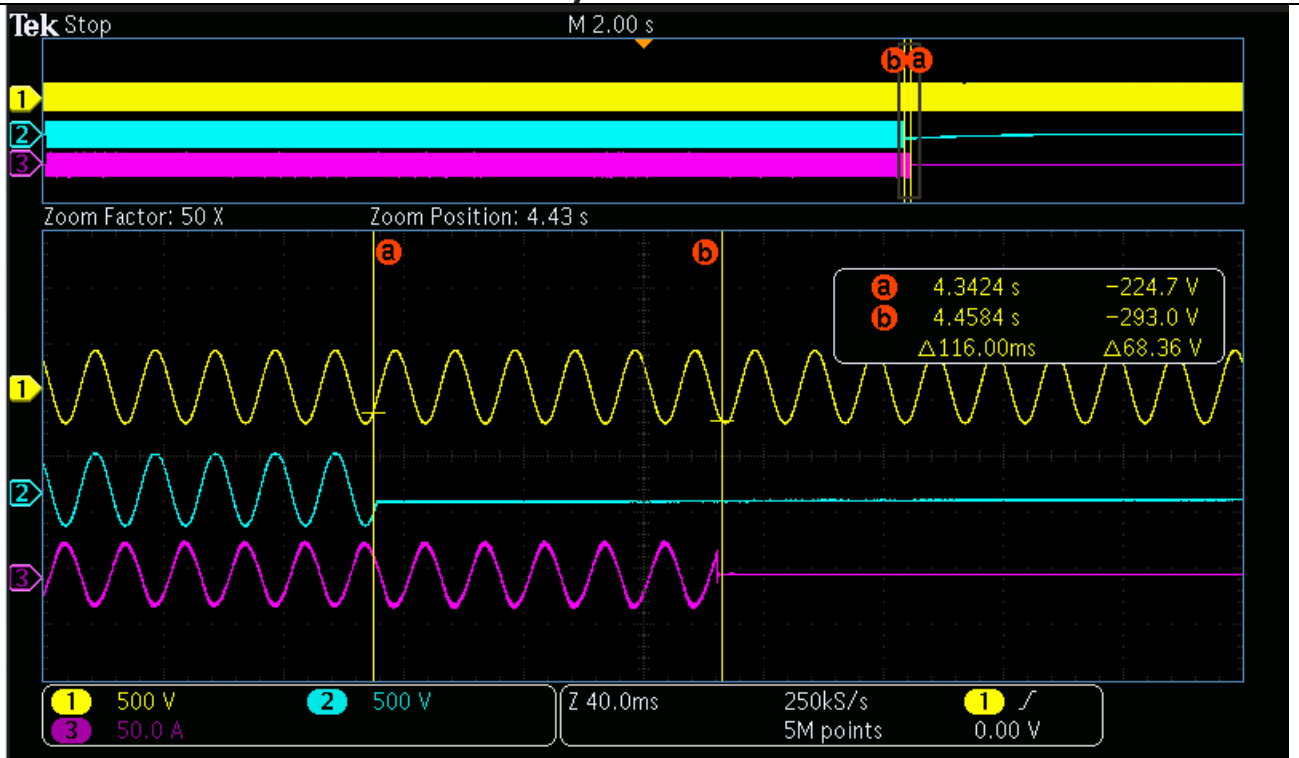
Bbis.8		Table: Checking the DC component output								P
Temperature: -10°C										
Power [%Nomin al VA]	Rated Current [Arms]			D.C component. Value [A]			D.C component. Value [%In]			Limit [%In]
	R	S	T	R	S	T	R	S	T	
33± 5	26.09	--	--	0.0874	--	--	0.335	--	--	0.5%
66± 5	26.09	--	--	0.0811	--	--	0.311	--	--	0.5%
100 ± 5	26.09	--	--	0.0799	--	--	0.306	--	--	0.5%

Bbis.8.1		TABLE: Check of protections against the DC current injection.									P
Power [%nomina l VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	$I_{dc} >$		
33± 5	1584	230	1.00	26.09	--	--	0.7462	2.860	0.5% In	403.0	1
66± 5	3168	230	1.00	26.09	--	--	1.1530	4.419	0.5% In	407.6	1
100 ± 5	4800	230	1.00	26.09	--	--	0.8090	3.101	0.5% In	403.6	1
Power [%nomina l VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	$I_{dc} >>$		
33± 5	1584	230	1.00	26.09	--	--	1.5801	6.056	1A	100.4	0.2
66± 5	3168	230	1.00	26.09	--	--	1.6009	6.136	1A	102.4	0.2
100 ± 5	4800	230	1.00	26.09	--	--	1.6219	6.217	1A	116.0	0.2





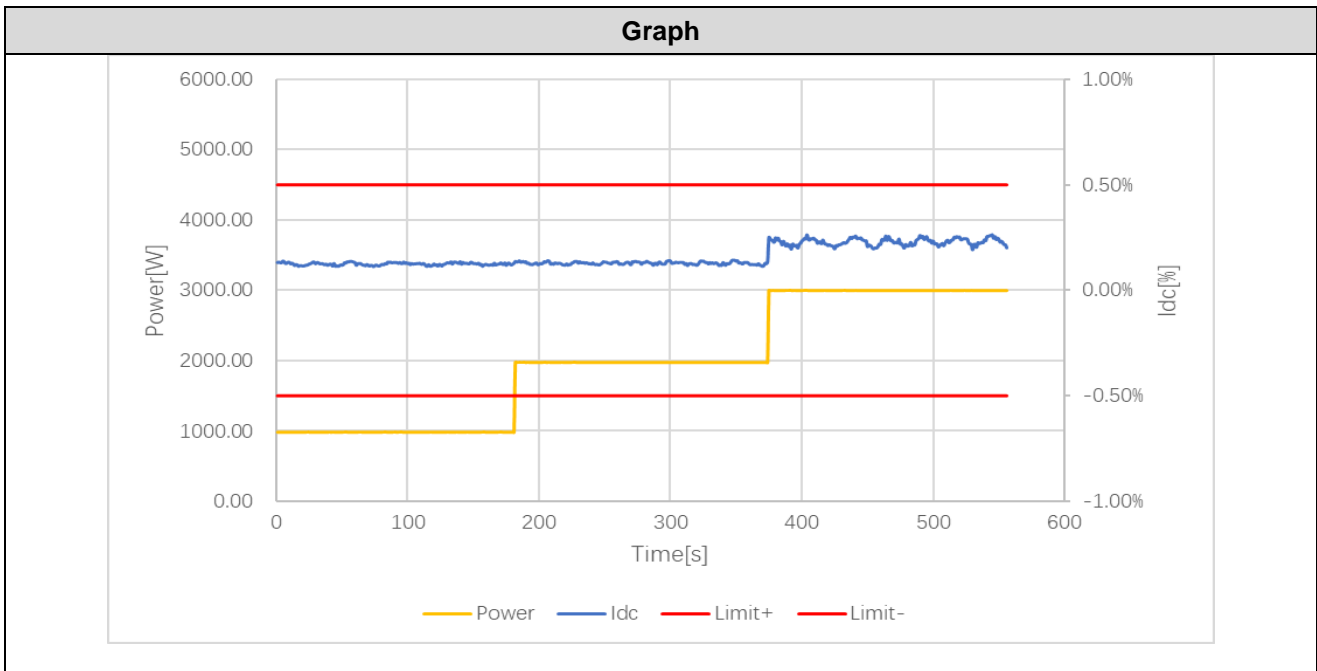
DC current injection more than 0.5%In

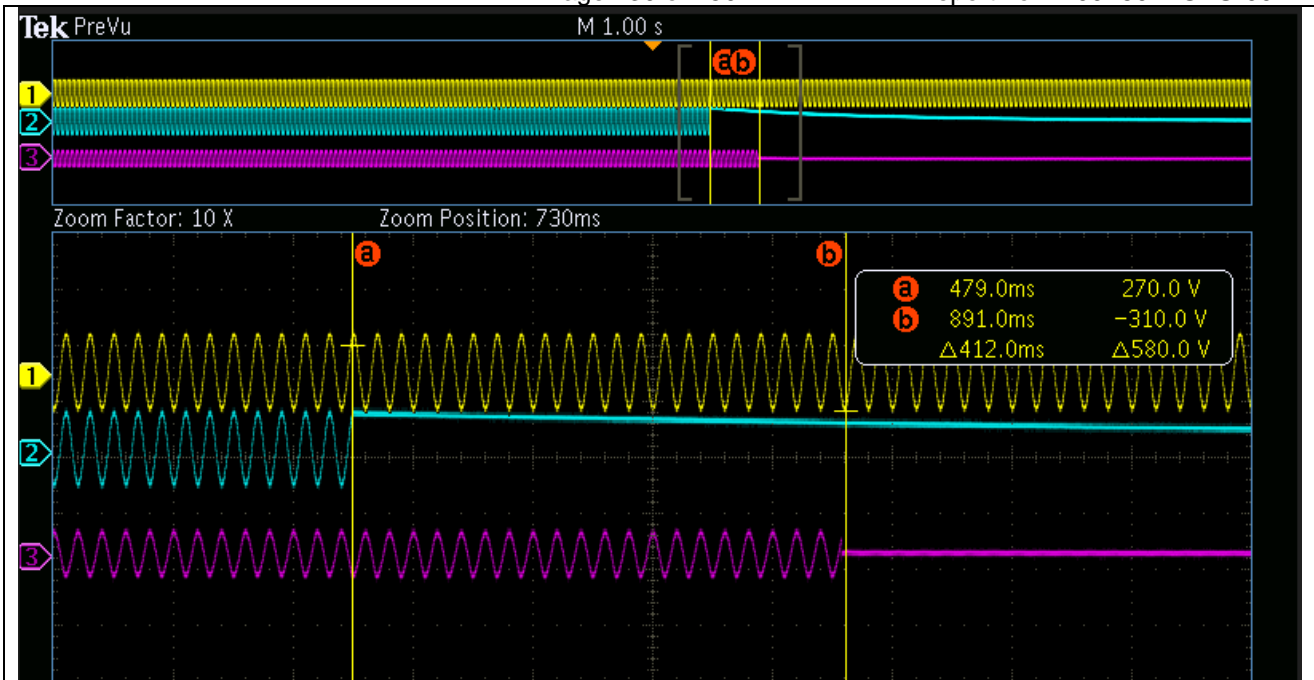


DC current injection more than 1A

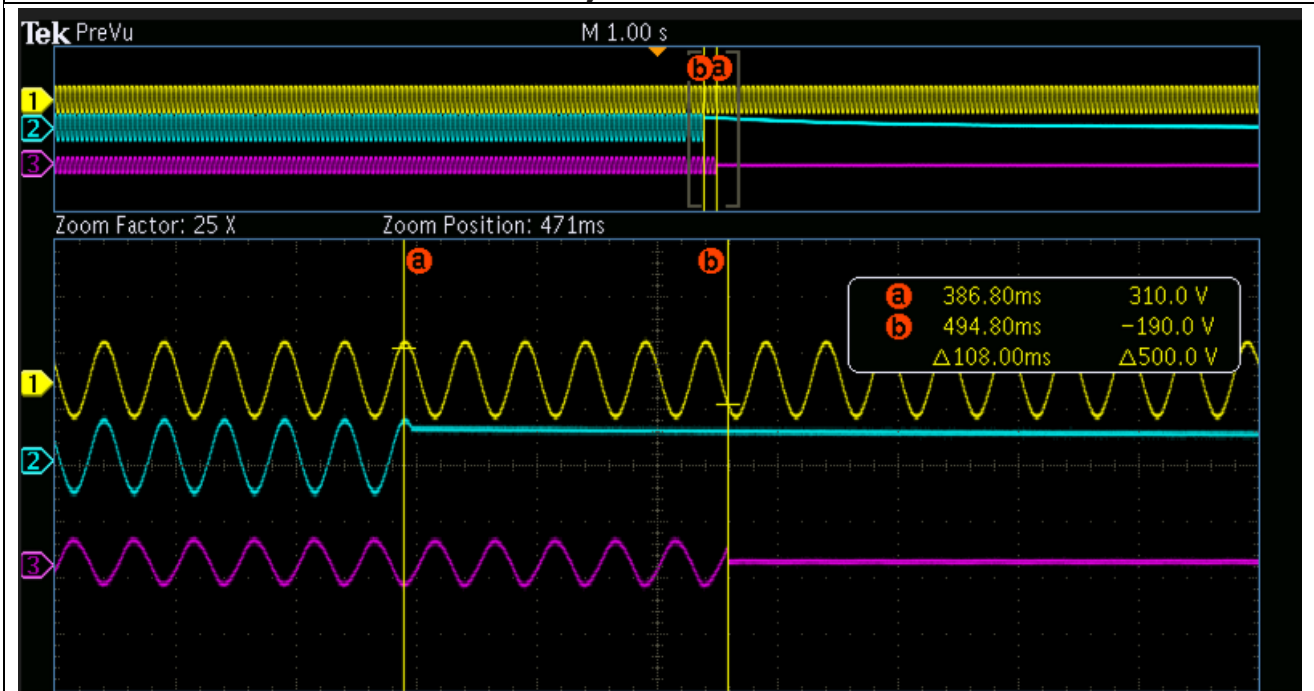
Bbis.8		Table: Checking the DC component output								P
Model: BD3KTL-RL1 tested with battery VT48100E-P1,discharging										
Temperature: 25°C										
Power [%Nomin al I VA]	Rated Current [Arms]			D.C component. Value [A]			D.C component. Value [%In]			Limit [%In]
	R	S	T	R	S	T	R	S	T	
33± 5	13.04	--	--	0.0229	--	--	0.18	--	--	0.5%
66± 5	13.04	--	--	0.0258	--	--	0.20	--	--	0.5%
100 ± 5	13.04	--	--	0.0610	--	--	0.47	--	--	0.5%

Bbis.8.1		TABLE: Check of protections against the DC current injection.								P	
Power [%nomina l VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	I _{dc} >		
33± 5	1000	230	1.00	13.04	--	--	0.896	6.87	0.5% In	407.0	1
66± 5	1980	230	1.00	13.04	--	--	0.849	6.51	0.5% In	412.0	1
100 ± 5	3000	230	1.00	13.04	--	--	0.650	4.98	0.5% In	412.0	1
Power [%nomina l VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	I _{dc} >>		
33± 5	1000	230	1.00	13.04	--	--	2.673	20.50	1A	103.2	0.2
66± 5	1980	230	1.00	13.04	--	--	3.447	26.44	1A	101.2	0.2
100 ± 5	3000	230	1.00	13.04	--	--	3.446	26.43	1A	108.0	0.2





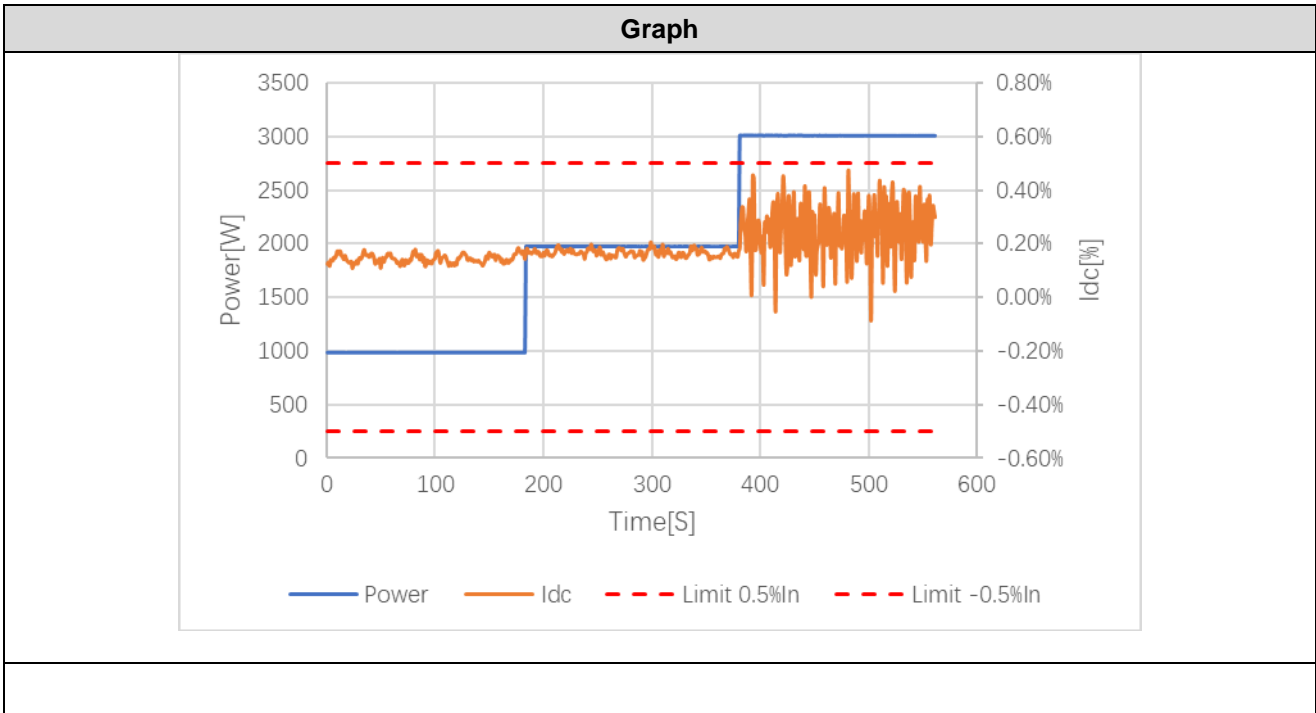
DC current injection more than 0.5%In

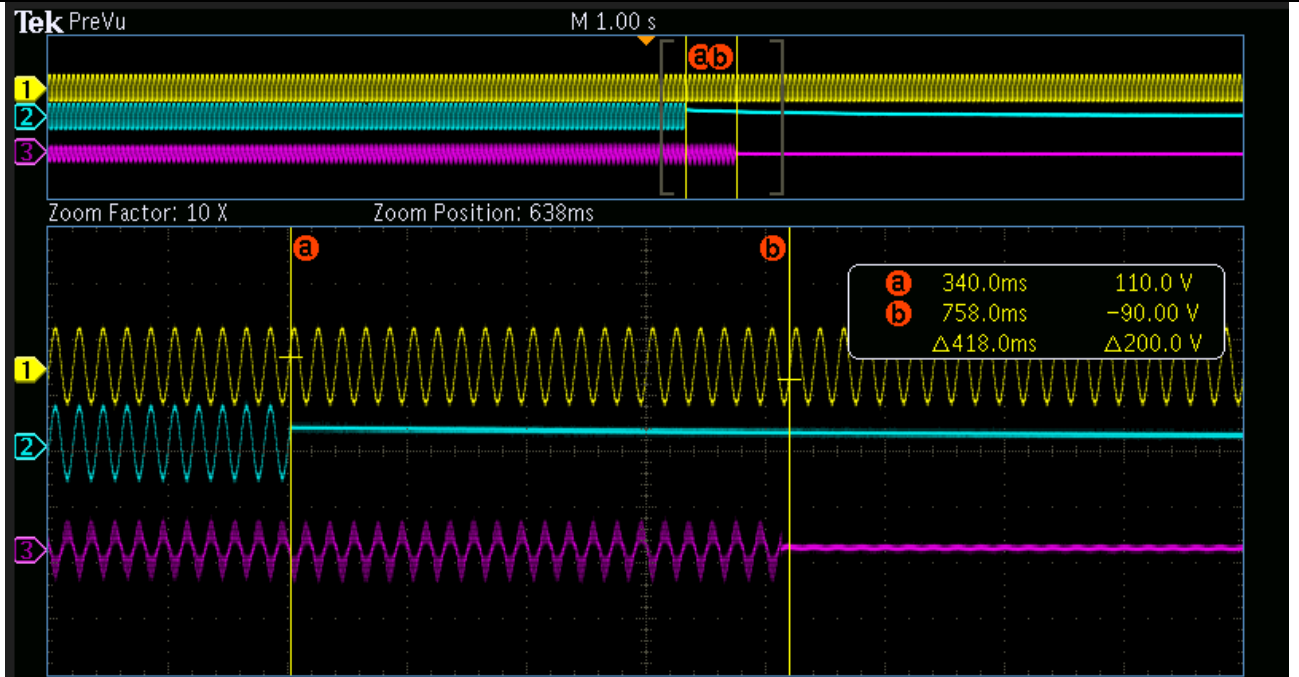


DC current injection more than 1A

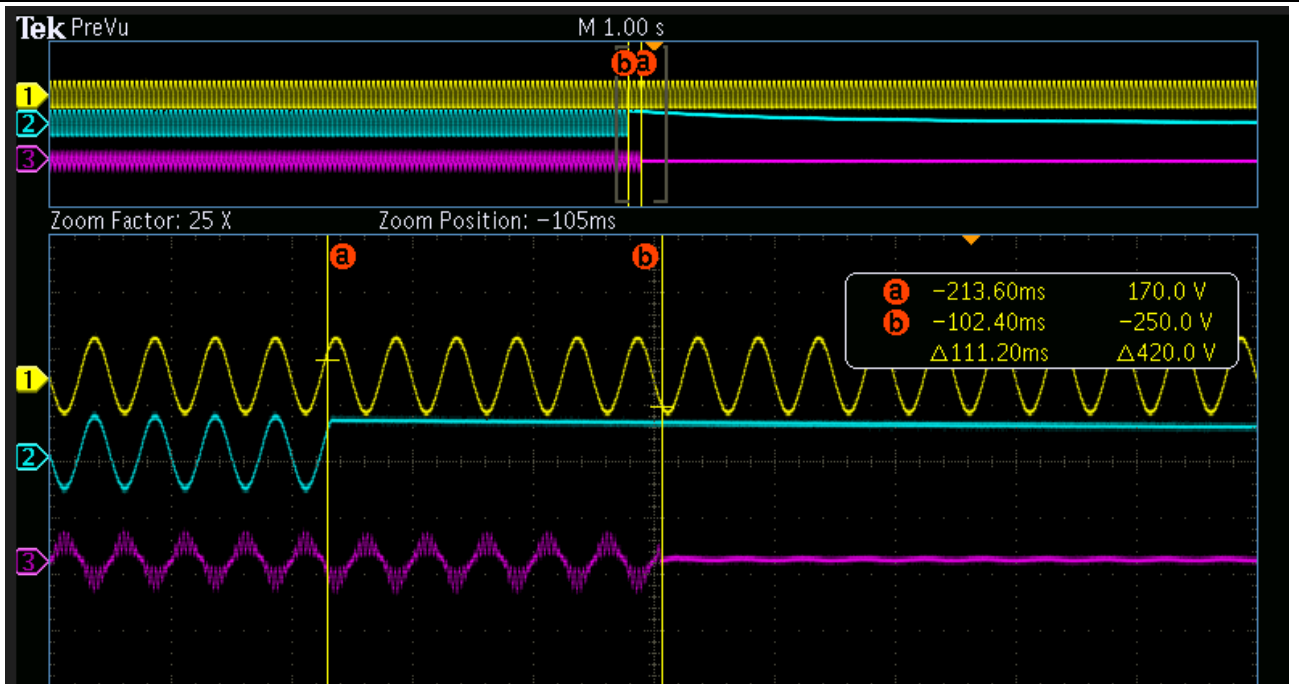
Bbis.8		Table: Checking the DC component output								P
Temperature: 55°C										
Power [%Nomin al I VA]	Rated Current [Arms]			D.C component. Value [A]			D.C component. Value [%In]			Limit [%In]
	R	S	T	R	S	T	R	S	T	
33± 5	13.04	--	--	0.0241	--	--	0.18	--	--	0.5%
66± 5	13.04	--	--	0.0269	--	--	0.21	--	--	0.5%
100 ± 5	13.04	--	--	0.0609	--	--	0.47	--	--	0.5%

Bbis.8.1		TABLE: Check of protections against the DC current injection.									P
Power [%nomina l VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	I _{dc} >		
33± 5	1000	230	1.00	13.04	--	--	0.695	5.33	0.5% In	418.0	1
66± 5	1980	230	1.00	13.04	--	--	0.774	5.93	0.5% In	410.0	1
100 ± 5	3000	230	1.00	13.04	--	--	0.650	4.98	0.5% In	417.0	1
Power [%nomina l VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	I _{dc} >>		
33± 5	1000	230	1.00	13.04	--	--	3.722	28.55	1A	111.2	0.2
66± 5	1980	230	1.00	13.04	--	--	3.433	26.32	1A	104.0	0.2
100 ± 5	3000	230	1.00	13.04	--	--	2.554	19.58	1A	110.0	0.2





DC current injection more than 0.5%In

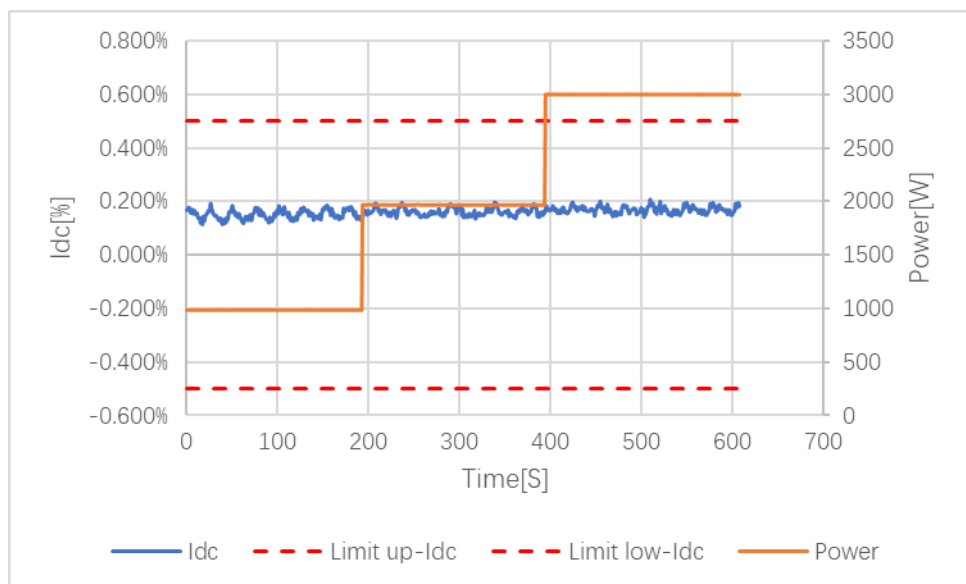


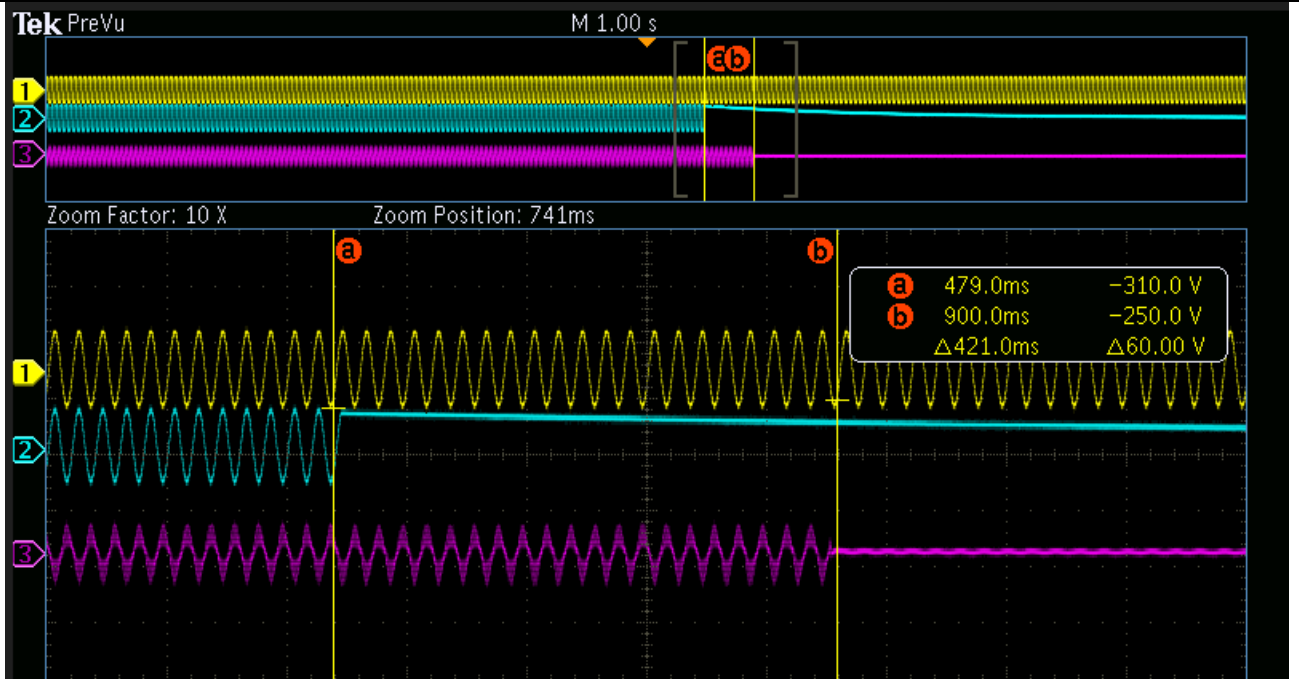
DC current injection more than 1A

Bbis.8		Table: Checking the DC component output								P
Temperature: -10°C										
Power [%Nominal I VA]	Rated Current [Arms]			D.C component. Value [A]			D.C component. Value [%In]			Limit [%In]
	R	S	T	R	S	T	R	S	T	
33± 5	13.04	--	--	0.0249	--	--	0.19	--	--	0.5%
66± 5	13.04	--	--	0.0254	--	--	0.19	--	--	0.5%
100 ± 5	13.04	--	--	0.0269	--	--	0.21	--	--	0.5%

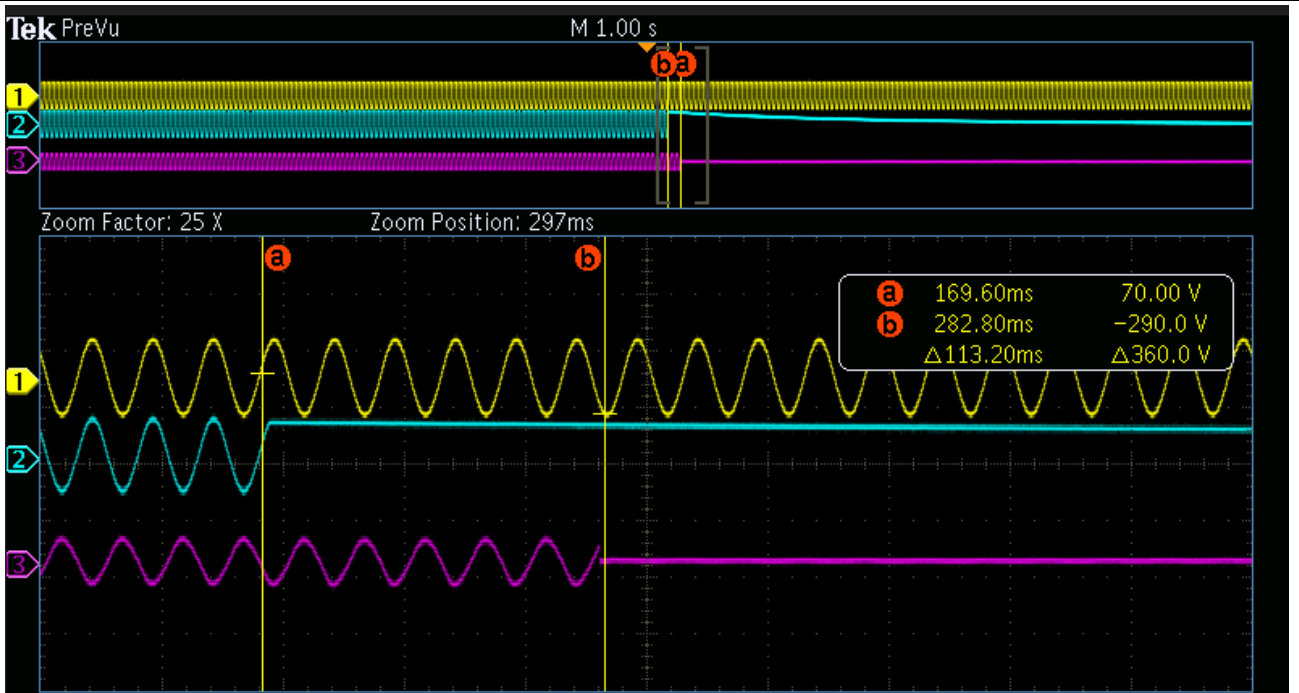
Bbis.8.1		TABLE: Check of protections against the DC current injection.									P
Power [%nominal I VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	I _{dc} >		
33± 5	1000	230	1.00	13.04	--	--	0.773	5.93	0.5% In	421.0	1
66± 5	1980	230	1.00	13.04	--	--	2.604	19.97	0.5% In	401.0	1
100 ± 5	3000	230	1.00	13.04	--	--	0.726	5.57	0.5% In	419.0	1
Power [%nominal I VA]	Power [W]	Rated Voltage [Vrms]	cos	Rated Current [Arms]			Intervention value D.C.			Trip Time [ms]	Limit [s]
				R	S	T	[A]	[%In]	I _{dc} >>		
33± 5	1000	230	1.00	13.04	--	--	3.415	26.19	1A	110.0	0.2
66± 5	1980	230	1.00	13.04	--	--	2.619	20.09	1A	110.0	0.2
100 ± 5	3000	230	1.00	13.04	--	--	3.440	26.38	1A	113.2	0.2

Graph



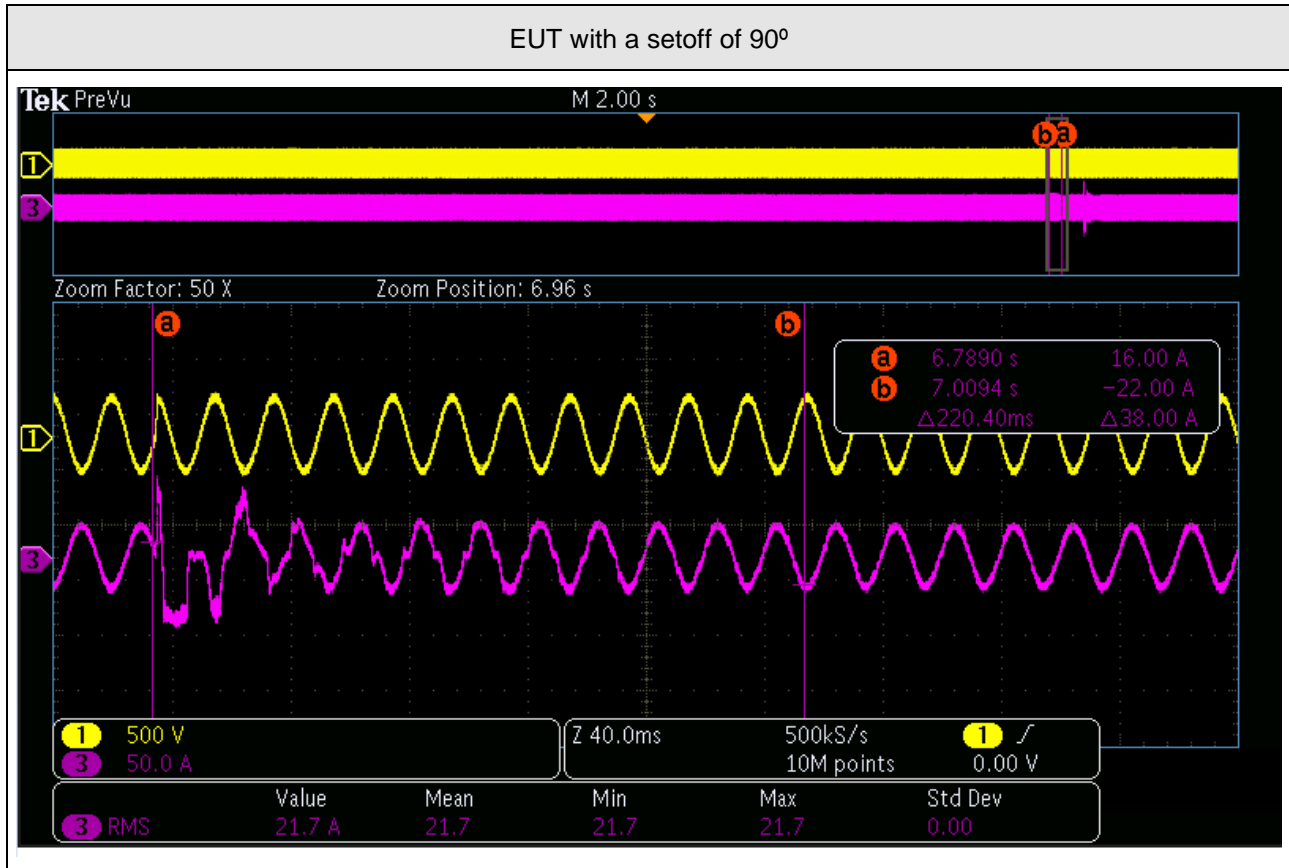


DC current injection more than 0.5%In

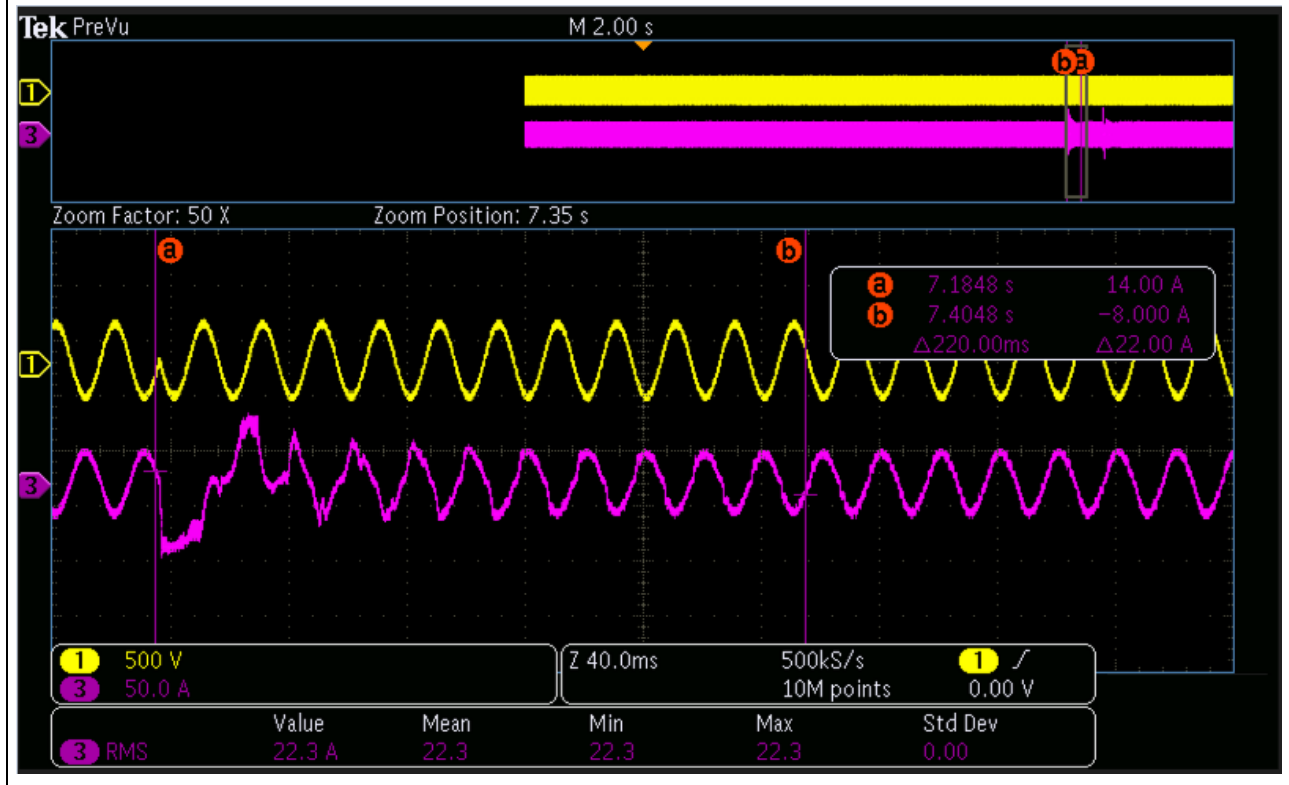


DC current injection more than 1A

Bbis.10		Table: Checking the insensitivity to automatic reclosing during phase discordance			P
Setoff	Angle before the setoff	Angle after the setoff	Current at 20 ms before to at least 200 ms after the setoff	Result	
90°	0°	90°	21.70	No damage	
180°	0°	180°	22.30	No damage	



EUT with a setoff of 180°





Certificate of Registration

质量管理体系 - ISO 9001:2015

兹证明：
 深圳市英威腾电气股份有限公司光明分公司
 91440300MA5FDH760L
 中国
 广东省
 深圳市
 光明区马田街道
 薯田埔社区科杰四路
 英威腾光明科技大厦A座
 邮编：518106

Shenzhen INVT Electric Co., Ltd.
 Guangming Branch
 Building A
 INVT Guangming Technology Building
 Kejie Fourth Road, Shutianpu Community,
 Matian Street
 Guangming District
 Shenzhen
 Guangdong
 518106
 China

持有证书：**FM 741214**

并运行符合 ISO 9001:2015 要求的质量管理体系，认证范围如下：

变频器的设计、销售和服务。不间断电源、光伏逆变器、电动汽车电控产品和汽车电源转换器的制造。
 The design, sales and services of inverter. The manufacture of uninterruptible power supply, PV (photovoltaic) inverter, electric control products for electric automobile and power converters for automobile.

BSI代表：

Chris Cheung, 亚太地区 合规风险主管

首次发证日期：2009-01-25

生效日期：2021-01-25

最新发证日期：2021-01-15

有效期至：2024-01-24

Page: 1 of 3



...making excellence a habit.™

此证书以电子版方式发放，所有权属BSI并受合同条款的约束。
 可以 [在线](#) 查询电子证书的有效性
 打印的证书可以通过网站 <http://www.bsi-global.com/ClientDirectory> 或者致电 +86 10 8507 3000 查询。本证书信息亦可在国家认证认可监督管理委员会官方网站 www.cnca.gov.cn 上查询。
 关于证书范围及 ISO 9001:2015 要求的适用性的进一步说明请咨询BSI。
 获证组织必须定期接受监督审核并经审核合格此证书方继续有效。
 此证书只在提供完整正本时才有效。

信息查询及联系方式：BSI, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP. 电话：+44 345 080 9000
 BSI保证英国有限公司，注册地英国，注册号码7805321，地址：389 Chiswick High Road, London W4 4AL, UK
 英标管理体系认证（北京）有限公司 北京市建国门外大街甲24号东海中心2008室 邮编：100004 电话：+86 10 85073000
 BSI集团公司成员。

Appendix 2: Photos



Overview



Bottom view



Connection view



Internal view



Battery for VT48100E-P1



Battery for CFE-5100

Appendix 3: Equipment

Asset	Description	Manufacturer	Model	Cal Date	Cal Due
SA200-16	Precision Power Analyzer	YOKOGAWA	WT3000	20 Nov 2021	19 Nov 2022
SA200-02	RLC load	Qunling	ACLT-4830H	/	/
SA200-52	AC power source	Chroma	61860	/	/
SA016-17	Programmable Temperature & Humidity Test Chambe	DONGZHIXU	DSW1040	16 Jul 2021	14 Jul 2023
SA002-16	Impulse tester	Anwei	MegaPulse 10*700-7	09 Dec 2021	08 Dec 2022
SA200-17	Withstanding Voltage Tester	Kikusui	TOS5052	15 June 2022	14 June 2023
SA050-33	Scope Corder	YOKOGAWA	DL 850E	07 Jan 2022	05 Jan 2023
SA200-22	Digital Insulation Tester	Fluke	Fluke1587C	02 June 2022	01 June 2023

(End of Report)