Test Verification of Conformity

Verification Number: 220215002GZU-VOC001

On the basis of the referenced test report(s), sample(s) tested of the below product have been found to comply with the standards harmonized with the regulation(s) listed on this verification at the time the tests were carried out. Other standards and Regulations may be relevant to the product. This verification is part of the full test report(s) and should be read in conjunction with it <them>.

Once compliance with all product relevant UKCA mark regulations are verified, including any relevant e.g. risk assessment and production control, the manufacturer may indicate compliance by signing a Declaration of Conformity themselves and applying the mark to products identical to the tested sample(s).

Applicant Name & Address:	Shenzhen Growatt New Energy Co., Ltd 4-13/F,Building A, Sino-German(Europe) Industrial Park, Hangcheng Ave, Bao'an District, Shenzhen City, Guangdong Province, P.R. China.
Product Description:	PV Grid inverter
Ratings & Principle Characteristics:	See Appendix: Test Verification of Conformity
Models/Type References:	MOD 3000TL3-X, MOD 4000TL3-X, MOD 5000TL3-X, MOD 6000TL3-X, MOD 7000TL3-X, MOD 8000TL3-X, MOD 9000TL3-X, MOD 10KTL3-X, MOD 11KTL3-X, MOD 12KTL3-X, MOD 13KTL3-X, MOD 15KTL3-X, MOD 3000TL3-XH, MOD 4000TL3-XH, MOD 5000TL3-XH, MOD 6000TL3-XH, MOD 7000TL3-XH, MOD 8000TL3-XH, MOD 9000TL3-XH, MOD 10KTL3-XH
Brand Name:	GROWATT
Relevant Standards/Regulations:	See Appendix: Test Verification of Conformity
Verification Issuing Office Name & Address:	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
Date of Tests:	2021.08.10-2021.10.20
Test Report Number(s):	60403140 001, CN21VWR3 001

Additional information in Appendix.

Tommy

Signature

Name: Tommy Zhong
Position: Techinical Manager
Date: 09 October 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 220215002GZU-VOC001.

Ratings & Principle Characteristics:

MODELS LIST		MOD 3000TL3-X	MOD 4000TL3-X	MOD 5000TL3-X	MOD 6000TL3-X
PV INPUT	V_{MAX} PV [Vdc]	1100			
	I_{SC} PV [A]	16/16			
	MPPT Voltage Range V_{MPP} [Vdc]	140-1000			
	Max. Input Current I_{MAX} [A] (A/B) (each MPPT if more than 1)	13/13			
	MPPT Full Power Voltage Range [Vdc]	250-800			
	Number of MPPT	2			
	String per MPPT	1/1			
	Start PV Voltage [Vdc]	200			
	Backfeed Current [A]	0			
	Overvoltage Category (OVC)	II			
AC OUTPUT	Rated Output Voltage Ur [Vac]	3W/N/PE, 230/400			
	Rated Output Frequency F_{NETZ} [Hz]	50/60			
	Normal Operating Frequency Range Fn [Hz]	45~55/55-65			
	Rated Output Power P_E [W]	3000	4000	5000	6000
	Max. Apparent power S_{Emax} [VA]	3300	4400	5500	6600
	Rated Output Current Ir [A]	4.3	5.8	7.2	8.7
	Max. Output Current Imax [A]	5.0	6.7	8.3	10.0

Signature

Name: Tommy Zhong
Position: Techinical Manager
Date: 09 October 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 220215002GZU-VOC001.

Ratings & Principle Characteristics:

AC OUTPUT	Power Factor cosϕ [λ]	0.8 leading ~0.8lagging
	Efficiency max. ηmax	98.3%
	Night Power Consumption [W]	1
	THD [Ѵ / I] (100% full power)	<3%
	Acoustic Noise [dB]	≤35dB
	Overvoltage Category (OVC)	III
CONSTRUCTION	Array Insulation Resistance Detection [Ω]	50
	Type of inverter	Non-isolated
	Type of NS Protection	Integrated
	Separated by	Transformerless
	Protective Class	Class I
	Enclosure Protection (IP)	IP66
	Operating Temperature Range [ºC]	-25°C to +60°C (45°C to 60°C with derating)
	Pollution degree (PD)	PD3
	Altitude [m]	4000m
	Size [mm]	425*387*138
	Weight [kg]	13.5

Signature

Name: Tommy Zhong
Position: Techinical Manager
Date: 09 October 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 220215002GZU-VOC001.

Ratings & Principle Characteristics:

MODELS LIST		MOD 7000T L3-X	MOD 8000T L3-X	MOD 9000T L3-X	MOD 10KTL 3-X	MOD 11KTL 3-X
PV INPUT	V_{MAX} PV [Vdc]	1100				
	I_{SC} PV [A]	16/16				
	MPPT Voltage Range V_{MPP} [Vdc]	140-1000				
	Max. Input Current I_{MAX} [A] (A/B) (each MPPT if more than 1)	13/13				
	MPPT Full Power Voltage Range [Vdc]	320-850	320-850	400-850	450-850	450-850
	Number of MPPT	2				
	String per MPPT	1/1				
	Start PV Voltage [Vdc]	200				
	Backfeed Current [A]	0				
	Overvoltage Category (OVC)	II				
AC OUTPUT	Rated Output Voltage Ur [Vac]	3W/N/PE, 230/400				
	Rated Output Frequency F_{NETZ} [Hz]	50/60				
	Normal Operating Frequency Range Fn [Hz]	45~55/55-65				
	Rated Output Power P_E [W]	7000	8000	9000	10000	11000
	Max. Apparent power S_{Emax} [VA]	7700	8800	9900	11000	12100
	Rated Output Current Ir [A]	10.1	11.6	13.0	14.5	15.9
	Max. Output Current Imax [A]	11.7	13.3	15.0	16.7	18.3

Signature

Name: Tommy Zhong
Position: Techinical Manager
Date: 09 October 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 220215002GZU-VOC001.

Ratings & Principle Characteristics:

AC OUTPUT	Power Factor cosϕ [λ]	0.8 leading ~0.8lagging
	Efficiency max. ηmax	98.6%
	Night Power Consumption [W]	1
	THD [Ѵ / I] (100% full power)	<3%
	Acoustic Noise [dB]	≤35dB
	Overvoltage Category (OVC)	III
CONSTRUCTION	Array Insulation Resistance Detection [Ω]	50
	Type of inverter	Non-isolated
	Type of NS Protection	Integrated
	Separated by	Transformerless
	Protective Class	Class I
	Enclosure Protection (IP)	IP66
	Operating Temperature Range [ºC]	-25°C to +60°C (45°C to 60°C with derating)
	Pollution degree (PD)	PD3
	Altitude [m]	4000m
	Size [mm]	425*387*178
	Weight [kg]	15.0

Signature

Name: Tommy Zhong
Position: Techinical Manager
Date: 09 October 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 220215002GZU-VOC001.

Ratings & Principle Characteristics:

MODELS LIST		MOD 12KTL3-X	MOD 13KTL3-X	MOD 15KTL3-X	
PV INPUT	V_{MAX} PV [Vdc]	1100			
	I_{SC} PV [A]	16/32			
	MPPT Voltage Range V_{MPP} [Vdc]	140-1000			
	Max. Input Current I_{MAX} [A] (A/B) (each MPPT if more than 1)	13/26			
	MPPT Full Power Voltage Range [Vdc]	480-850	480-850	520-850	
	Number of MPPT	2			
	String per MPPT	1/2			
	Start PV Voltage [Vdc]	200			
	Backfeed Current [A]	0			
	Overvoltage Category (OVC)	II			
AC OUTPUT	Rated Output Voltage Ur [Vac]	3W/N/PE, 230/400			
	Rated Output Frequency F_{NETZ} [Hz]	50/60			
	Normal Operating Frequency Range Fn [Hz]	45~55/55-65			
	Rated Output Power P_E [W]	12000	13000	15000	12000
	Max. Apparent power S_{Emax} [VA]	13200	14300	16500	13200
	Rated Output Current Ir [A]	17.4	18.8	21.7	17.4
	Max. Output Current Imax [A]	20	21.7	25	20

Signature

Name: Tommy Zhong
Position: Techinical Manager
Date: 09 October 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 220215002GZU-VOC001.

Ratings & Principle Characteristics:

AC OUTPUT	Power Factor cosϕ [λ]	0.8 leading ~0.8lagging
	Efficiency max. ηmax	98.6%
	Night Power Consumption [W]	1
	THD [Ѵ / I] (100% full power)	<3%
	Acoustic Noise [dB]	≤35dB
	Overvoltage Category (OVC)	III
CONSTRUCTION	Array Insulation Resistance Detection [Ω]	50
	Type of inverter	Non-isolated
	Type of NS Protection	Integrated
	Separated by	Transformerless
	Protective Class	Class I
	Enclosure Protection (IP)	IP66
	Operating Temperature Range [ºC]	-25°C to +60°C (45°C to 60°C with derating)
	Pollution degree (PD)	PD3
	Altitude [m]	4000m
	Size [mm]	425*387*178
	Weight [kg]	16.5

Signature

Name: Tommy Zhong
Position: Techinical Manager
Date: 09 October 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 220215002GZU-VOC001.

Ratings & Principle Characteristics:

MODELS LIST		MOD 3000TL3-XH	MOD 4000TL3-XH	MOD 5000TL3-XH	MOD 6000TL3-XH
PV INPUT	V_{MAX} PV [Vdc]	1100			
	I_{SC} PV [A]	20/20			
	MPPT Voltage Range V_{MPP} [Vdc]	140-1000			
	Max. Input Current I_{MAX} [A] (A/B) (each MPPT if more than 1)	16/16			
	MPPT Full Power Voltage Range [Vdc]	250-800			
	Number of MPPT	2			
	String per MPPT	1/1			
	Backfeed Current [A]	0			
	Overvoltage Category (OVC)	II			
DC Side	Operating voltage range [Vdc]	600-950			
	Full load voltage range [Vdc]	600-800			
	Max. Operating current [A]	11			
	Max. Discharge power [W]	3300	4400	5500	6600
	Max. Charge power [W]	6600			
	Overvoltage Category (OVC)	II			
AC Side	Rated Output VoltageUr [Vac]	3W/N/PE, 230/400			
	Rated Output Frequency F_{NETZ} [Hz]	50/60			
	Normal Operating Frequency Range Fn [Hz]	45~55/55-65			

Signature

Name: Tommy Zhong
Position: Techinical Manager
Date: 09 October 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 220215002GZU-VOC001.

Ratings & Principle Characteristics:

AC Side	Rated Output Power P_E [W]	3000	4000	5000	6000
	Max. Apparent power S_{Emax} [VA]	3300	4400	5500	6600
	Rated Output Current Ir [A]	4.3	5.8	7.2	8.7
	Max. Output Current Imax [A]	5.0	6.7	8.3	10.0
	Power Factor cosϕ [λ]	0.8 leading ~0.8lagging			
	Efficiency max. ηmax	98.3%			
	Night Power Consumption [W]	<5.5			
	THD [V / I] (100% full power)	<3%			
	Acoustic Noise [dB]	≤35dB			
	Overvoltage Category (OVC)	III			
CONSTRUCTION	Array Insulation Resistance Detection[Ω]	50K			
	Type of inverter	Non-isolated			
	Type of NS Protection	Integrated			
	Separated by	Transformerless			
	Protective Class	Class I			
	Enclosure Protection(IP)	IP66			
	Operating Temperature Range [ºC]	-25°C to +60°C (45°C to 60°C with derating)			
	Pollution degree (PD)	PD3			
	Altitude [m]	3000m			
	Size [mm]	425*387*147			
	Weight [kg]	12.5			

Signature

Name: Tommy Zhong
Position: Techinical Manager
Date: 09 October 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 220215002GZU-VOC001.

Ratings & Principle Characteristics:

MODELS LIST		MOD 7000TL3-XH	MOD 8000TL3-XH	MOD 9000TL3-XH	MOD 10KTL3-XH
PV INPUT	V_{MAX} PV [Vdc]	1100			
	I_{SC} PV [A]	20/20			
	MPPT Voltage Range V_{MPP} [Vdc]	140-1000			
	Max. Input Current I_{MAX} [A] (A/B) (each MPPT if more than 1)	16/16			
	MPPT Full Power Voltage Range [Vdc]	320-850	320-850	400-850	450-850
	Number of MPPT	2			
	String per MPPT	1/1			
	Backfeed Current [A]	0			
	Overvoltage Category (OVC)	II			
DC Side	Operating voltage range [Vdc]	600-950			
	Full load voltage range [Vdc]	600-800			
	Max. Operating current [A]	18.5			
	Max. Discharge power [W]	7700	8800	9900	11000
	Max. Charge power [W]	10000			
	Overvoltage Category (OVC)	II			
AC Side	Rated Output VoltageUr [Vac]	3W/N/PE, 230/400			
	Rated Output Frequency F_{NETZ} [Hz]	50/60			
	Normal Operating Frequency Range Fn [Hz]	45~55/55-65			

Signature

Name: Tommy Zhong
Position: Techinical Manager
Date: 09 October 2022

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 220215002GZU-VOC001.

Ratings & Principle Characteristics:

AC Side	Rated Output Power P_E [W]	7000	8000	9000	10000
	Max. Apparent power S_{Emax} [VA]	7700	8800	9900	11000
	Rated Output Current Ir [A]	10.1	11.6	13.0	14.5
	Max. Output Current Imax [A]	11.7	13.3	15.0	16.7
	Power Factor cosϕ [λ]	0.8 leading ~0.8lagging			
	Efficiency max. ηmax	98.6%			
	Night Power Consumption [W]	<5.5			
	THD [V / I] (100% full power)	<3%			
	Acoustic Noise [dB]	≤35dB			
	Overvoltage Category (OVC)	III			
CONSTRUCTION	Array Insulation Resistance Detection[Ω]	50K			
	Type of inverter	Non-isolated			
	Type of NS Protection	Integrated			
	Separated by	Transformerless			
	Protective Class	Class I			
	Enclosure Protection(IP)	IP66			
	Operating Temperature Range [ºC]	-25°C to +60°C (45°C to 60°C with derating)			
	Pollution degree (PD)	PD3			
	Altitude [m]	3000m			
	Size [mm]	425*387*178			
	Weight [kg]	14.0			

Relevant Standards/Regulations:

EN 62109-1: 2010 Safety of power converters for use in photovoltaic power systems – Part 1: General requirements
EN 62109-2: 2011 Safety of power converters for use in photovoltaic power systems – Part 2: Particular requirements for inverters
Low Voltage Directive 2014/35/EU

Signature

Name: Tommy Zhong
Position: Techinical Manager
Date: 09 October 2022