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TESTING
CNAS L2291

EMTEK 
Access to the World

Certificate of Conformity

NO.: ES200115029E

The following product has been tested by us with the listed standards and found in conformity with the council EMC directive 2014/30/EU. It is possible to use CE marking to demonstrate the conformity with this EMC Directive.

Applicant : SHENZHEN GROWATT NEW ENERGY TECHNOLOGY CO.,LTD
 Address : 1st East & 3rd Floor of Building A, Building B, Jiayu Industrial Park,
 #28, GuangHui Road, LongTeng Community, Shiyan Street, Baoan
 District, Shenzhen, P.R.China
 Manufacturer : SHENZHEN GROWATT NEW ENERGY TECHNOLOGY CO.,LTD
 Address : 1st East & 3rd Floor of Building A, Building B, Jiayu Industrial Park,
 #28, GuangHui Road, LongTeng Community, Shiyan Street, Baoan
 District, Shenzhen, P.R.China
 Trade Mark : Growatt
 EUT : PV Grid Inverter
 M/N : MAC 15KTL3-XL, MAC 20KTL3-XL, MAC 22KTL3-XL,
 MAC 25KTL3-XL, MAC 30KTL3-XL, MAC 36KTL3-XL,
 MAC 30KTL3-X LV, MAC 40KTL3-X LV, MAC 50KTL3-X LV,
 MAC 60KTL3-X LV, MAC 50KTL3-X MV, MAC 60KTL3-X MV,
 MAC 66KTL3-X MV, MAC 70KTL3-X MV
 Test Standards : EN 61000-6-3:2007+A1:2011+ AC:2012,
 IEC 61000-6-3: 2006+A1:2010,
 EN 61000-6-2: 2005, IEC 61000-6-2:2005
 (IEC 61000-4-2:2008, IEC 61000-4-3:2006+A1:2007+A2:2010,
 IEC61000-4-4:2012, IEC 61000-4-5:2014, IEC 61000-4-6:2013,
 IEC 61000-4-8:2009, IEC 61000-4-11:2004)
 Version : Ver.1.0




 (Manager) 
 CERTIFICATE

March 18, 2020

The certificate is based on a single evaluation of one sample of above-mentioned products, It does not imply an assessment of the whole production and does not permit the use of the test lab. logo .

EMTEK (Shenzhen) Co., Ltd.

Add: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China Http://www.emtek.com.cn E-mail: cs.rep@emtek.com.cn



Certificate of Conformity

Certificate Number: CN-PV-190079

On the basis of the tests undertaken, the samples of the below product have been found to comply with the requirements of the referenced specifications /standards at the time the tests were carried out. It does not imply that Intertek has performed any surveillance or control of the manufacture. The manufacturer shall ensure that the manufacturing process assures compliance of the production units with the examined products mentioned in this certificate.

Applicant:	Shenzhen Growatt New Energy Technology CO.,Ltd 1st East & 3rd Floor of Building A, Building B, Jiayu Industrial Park, #28, GuangHui Road, LongTeng Community, Shiyan Street, Baoan District, Shenzhen, P. R. China
Product:	PV Grid inverter
Ratings & Principle Characteristics:	See Appendix to Certificate of Conformity
Models:	MAC 15KTL3-XL, MAC 20KTL3-XL, MAC 22KTL3-XL, MAC 25KTL3-XL, MAC 30KTL3-XL, MAC 36KTL3-XL, MAC 30KTL3-X LV MAC 40KTL3-X LV, MAC 50KTL3-X LV, MAC 60KTL3-X LV, MAC 50KTL3-X MV, MAC 60KTL3-X MV, MAC 66KTL3-X MV, MAC 70KTL3-X MV
Brand Name:	Growatt
Tested according to:	IEC 61727:2004 Photovoltaic (PV) systems – Characteristics of the utility interface IEC 62116:2014 Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters
Certificate Issuing Office Name & Address:	Intertek Testing Services Ltd. Shanghai 2/F (West Side), No. 707, Zhangyang Road, Free Trade Experimental Area, Shanghai, P. R. China
Test Reports No:	191120145GZU-001, 191120145GZU-002

Additional information in Appendix.



Signature

Certification Manager: Grady Ye

Date: 6 December 2019

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-190079.

Ratings & Principle Characteristics:

Model	MAC 15KTL3-XL	MAC 20KTL3-XL	MAC 22KTL3-XL	MAC 25KTL3-XL
Max.PV voltage	1100Vdc			
PV voltage range	200V – 1000Vdc			
Max.input current	52A/52A/52A			
PV Isc	55A*3			
Nominal output voltage	3W/N/PE, 127/220Vac			
Nominal output Frequency	50/60Hz			
Max.output current	43.6A	58.3A	64.0A	73.0A
Max.output power	15.0KW	20.0KW	22.0KW	25.0KW
Max.apparent power	16.6KVA	22.2KVA	24.4KVA	27.8KVA
Power factor range	0.8Leading – 0.8 lagging			
Safety level	Class I			
Ingress Protection	IP 65			
Operation Ambient Temperature	-25°C - +60°C			
Software Version	TK1.0			

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-190079.

Ratings & Principle Characteristics:

Model	MAC 30KTL3-XL	MAC 36KTL3-XL
Max.PV voltage	1100Vdc	
PV voltage range	200V – 1000Vdc	
Max.input current	52A/52A/52A	
PV Isc	55A*3	
Nominal output voltage	3W/N/PE, 127/220Vac	
Nominal output Frequency	50/60Hz	
Max.output current	87.4A	94.5A
Max.output power	30.0KW	36.0KW
Max.apparent power	33.3KVA	36.0KVA
Power factor range	0.8Leading – 0.8 lagging	
Safety level	Class I	
Ingress Protection	IP 65	
Operation Ambient Temperature	-25°C - +60°C	
Safety level	Class I	
Ingress Protection	IP 65	
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Software version	TK1.0	

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-190079.

Ratings & Principle Characteristics:

Model	MAC 50KTL3-X MV	MAC 60KTL3-X MV	MAC 66KTL3-X MV	MAC 70KTL3-X MV
Max.PV voltage	1100Vdc			
PV voltage range	200V – 1000Vdc			
Max.input current	52A/39A /39A	52A*3		
PV Isc	55A*3			
Nominal output voltage	3W/PE, 277/480Vac			
Nominal output Frequency	50/60Hz			
Max.output current	66.9A	80.2A	88.2A	93.6A
Max.output power	50.0KW	60.0KW	66.0KW	70.0KW
Max.apparent power	55.5KVA	66.6KVA	73.3KVA	77.7KVA
Power factor range	0.8Leading – 0.8 lagging			
Safety level	Class I			
Ingress Protection	IP 65			
Operation Ambient Temperature	-25°C - +60°C			
Safety level	Class I			
Ingress Protection	IP 65			
Operation Ambient Temperature	-25°C - +60°C			
Software version	TK1.0			

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-190079.

Ratings & Principle Characteristics:

Model	MAC 30KTL3-X LV	MAC 40KTL3-X LV	MAC 50KTL3- X LV	MAC 60KTL3-X LV
Max.PV voltage	1100Vdc			
PV voltage range	200V – 1000Vdc			
Max.input current	39A*2 / 26A	39A*3	52/39/39A	52A*3
PV Isc	45A*3	55A*3		
Nominal output voltage	3W/N/PE, 230/400Vac			
Nominal output Frequency	50/60Hz			
Max.output current	48.3A	64.4A	80.5A	96.6A
Max.output power	30.0KW	40.0KW	50.0KW	60.0KW
Max.apparent power	33.3KVA	44.4KVA	55.5KVA	66.6KVA
Power factor range	0.8Leading – 0.8 lagging			
Safety level	Class I			
Ingress Protection	IP 65			
Operation Ambient Temperature	-25°C - +60°C			
Software version	TK1.0			

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Test Verification of Conformity

Verification Number: 191022057GZU-VOC001

On the basis of the tests undertaken, the samples of the below product have been found to comply with the requirements of the referenced specifications/standards at the time the tests were carried out. This verification is part of the full test report and should be read in conjunction with it.

Applicant Name & Address:	Shenzhen Growatt New Energy Technology Co., Ltd 1st East & 3rd Floor of Building A, Building B, Jiayu Industrial Park, #28, GuangHui Road, LongTeng Community, Shiyan Street, Baoan District, Shenzhen, P.R.China
Product Description:	PV Grid inverter
Ratings & Principle Characteristics:	See APPENDIX of Test Verification of Conformity
Models/Type References:	MAC 50KTL3-X MV, MAC 60KTL3-X MV, MAC 66KTL3-X MV, MAC 70KTL3-X MV
Brand Name:	Growatt
Specifications/Standards:	IEEE 1547:2003 Interconnecting Distributed Resources with Electric Power Systems (R2008) IEEE 1547A:2014 Amendment 1 to IEEE 1547 - Interconnecting Distributed Resources with Electric Power Systems IEEE 1547.1:2005 Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources With Electric Power Systems
Verification Issuing Office Name & Address:	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China
Test Report Number:	191022057GZU-001

Additional information in Appendix.



Signature

Name: Tommy Zhong

Position: Technical Manager

Date: 06 December 2019

This Verification is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Verification. Only the Client is authorized to permit copying or distribution of this Verification. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test/inspection results referenced in this Verification are relevant only to the sample tested/inspected. This Verification by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 191022057GZU-VOC001

Ratings & Principle Characteristics:

Model	MAC 50KTL3-X MV	MAC 60KTL3-X MV	MAC 66KTL3-X MV	MAC 70KTL3-X MV
Max.PV voltage	1100Vdc			
PV voltage range	200V – 1000Vdc			
Max.input current	52A/39A /39A	52A*3		
PV Isc	55A*3			
Nominal output voltage	3W/PE, 277/480Vac			
Nominal output Frequency	60Hz			
Max.output current	66.9A	80.2A	88.2A	93.6A
Max.output power	50.0KW	60.0KW	66.0KW	70.0KW
Max.apparent power	55.5KVA	66.6KVA	73.3KVA	77.7KVA
Power factor range	0.8Leading – 0.8 lagging			
Safety level	Class I			
Ingress Protection	IP 65			
Operation Ambient Temperature	-25°C - +60°C			
Software version	TK1.0			

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Certificate of Conformity

Certificate Number: CN-PV-200122

On the basis of the tests undertaken, the samples of the below product have been found to comply with the requirements of the referenced specifications/standards at the time the tests were carried out. It does not imply that Intertek has performed any surveillance or control of the manufacture. The manufacturer shall ensure that the manufacturing process assures compliance of the production units with the examined products mentioned in this certificate.

Applicant:	Shenzhen Growatt New Energy Technology Co.,Ltd 1st East & 3rd Floor of Building A, Building B, Jiayu Industrial Park, #28, GuangHui Road, LongTeng Community, Shiyan Street, Baoan District, Shenzhen, P.R.China
Product:	PV Grid inverter
Ratings & Principle Characteristics:	See appendix of Certificate of Conformity
Model:	MAC 50KTL3-X LV, MAC 60KTL3-X LV, MAC 70KTL3-X MV
Brand Name:	Growatt
Tested according to:	IEC 60068-2-1:2007, Environmental testing – Part 2-1: Tests- Test A: Cold IEC 60068-2-2:2007, Environmental testing – Part 2-2: Tests- Test B: Dry heat IEC 60068-2-14:2009, Environmental testing – Part 2-14: Tests- Test N: Change of temperature IEC 60068-2-30:2005, Environmental testing – Part 2-30: Tests- Test Db: Damp heat, cyclic (12h +12h cycle) IEC 61683: 1999, Photovoltaic systems – Power conditioners – Procedure for measuring efficiency
Certificate Issuing Office Name & Address:	Intertek Testing Services Ltd. Shanghai West Area, 2nd Floor, No. 707, Zhangyang Road China (Shanghai) Pilot Free Trade Zone, Shanghai, P. R. China
Test Report No.:	200630053GZU-001

Additional information in Appendix.



Signature

Certification Manager: Grady Ye

Date: 08 September 2020

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-200122

Ratings & Principle Characteristics:

Model	MAC 50K TL3-X LV	MAC 60K TL3-X LV	MAC 70K TL3-X MV
Max.PV voltage	1100Vdc		
PV voltage range	200V – 1000Vdc		
Max.input current	52/39/39A	52A*3	52A*3
PV Isc	55A*3		
Nominal output voltage	3W/N/PE, 230/400Vac		3W/PE, 277/480Vac
Nominal output Frequency	50/60Hz		
Max.output current	80.5A	96.6A	93.6A
Max.output power	50.0KW	60.0KW	70.0KW
Max.apparent power	55.5KVA	66.6KVA	77.7KVA
Power factor range	0.8Leading – 0.8 lagging		
Safety level	Class I		
Ingress Protection	IP 65		
Operation Ambient Temperature	-25°C - +60°C		
Software version	TK1.0		

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Certificate of Conformity

Certificate Number: CN-PV-200053

On the basis of the tests undertaken, the samples of the below product have been found to comply with the requirements of the referenced specifications /standards at the time the tests were carried out. It does not imply that Intertek has performed any surveillance or control of the manufacture. The manufacturer shall ensure that the manufacturing process assures compliance of the production units with the examined products mentioned in this certificate.

Applicant Name & Address:	Shenzhen Growatt New Energy Technology CO.,Ltd 1st East & 3rd Floor of Building A, Building B, Jiayu Industrial Park, #28, GuangHui Road, LongTeng Community, Shiyan Street, Baoan District, Shenzhen, P.R.China
Product Description:	PV Grid inverter
Ratings & Principle Characteristics:	See Annex to Certificate of Conformity
Models/Type References:	MAC 15KTL3-XL, MAC 20KTL3-XL, MAC 22KTL3-XL, MAC 25KTL3-XL, MAC 30KTL3-XL, MAC 36KTL3-XL, MAC 30KTL3-X LV, MAC 40KTL3-X LV, MAC 50KTL3-X LV, MAC 60KTL3-X LV, MAC 50KTL3-X MV, MAC 60KTL3-X MV, MAC 66KTL3-X MV, MAC 70KTL3-X MV
Brand Name:	
Specification/Standard:	See Appendix: Certificate of Conformity
Certificate Issuing Office Name & Address:	Intertek Testing Services Ltd. Shanghai 2/F (West Side), No. 707, Zhangyang Road, Free Trade Experimental Area, Shanghai, P. R. China
Test Report Number:	190829057GZU-001, 190829057GZU-001 Revision 1 190829057GZU-002, 190829057GZU-002 Revision 1

Additional information in Appendix.



Signature

Certification Manager: Grady Ye

Date: 19 June 2020

This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.

APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-200053

Ratings &
Principle
Characteristics:

Model	MAC 50KTL3-X MV	MAC 60KTL3-X MV	MAC 66KTL3-X MV	MAC 70KTL3-X MV
Max.PV voltage	1100Vdc			
PV voltage range	200V – 1000Vdc			
Max.input current	52A/39A /39A	52A*3		
PV Isc	55A*3			
Nominal output voltage	3W/PE, 277/480Vac			
Nominal output Frequency	50/60Hz			
Max.output current	66.9A	80.2A	88.2A	93.6A
Max.output power	50.0KW	60.0KW	66.0KW	70.0KW
Max.apparent power	55.5KVA	66.6KVA	73.3KVA	77.7KVA
Power factor range	0.8Leading – 0.8 lagging			
Safety level	Class I			
Ingress Protection	IP 65			
Operation Ambient Temperature	-25°C - +60°C			
Software version	TK1.0			

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-200053

Ratings &
Principle
Characteristics:

Model	MAC 30KTL3-X LV	MAC 40KTL3-X LV	MAC 50KTL3-X LV	MAC 60KTL3-X LV
Max.PV voltage	1100Vdc			
PV voltage range	200V – 1000Vdc			
Max.input current	39A*2 /26A	39A*3	52/39/39A	52A*3
PV Isc	45A*3		55A*3	
Nominal output voltage	3W/N/PE, 230/400Vac			
Nominal output Frequency	50/60Hz			
Max.output current	48.3A	<u>64.4A</u>	<u>80.5A</u>	96.6A
Max.output power	30.0KW	40.0KW	50.0KW	60.0KW
Max.apparent power	33.3KVA	44.4KVA	55.5KVA	66.6KVA
Power factor range	0.8Leading – 0.8 lagging			
Safety level	Class I			
Ingress Protection	IP 65			
Operation Ambient Temperature	-25°C - +60°C			
Software version	TK1.0			

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-200053

Ratings &
Principle
Characteristics:

Model	MAC 15KTL3-XL	MAC 20KTL3-XL	MAC 22KTL3-X L	MAC 25KTL3-XL
Max.PV voltage	1100Vdc			
PV voltage range	200V – 1000Vdc			
Max.input current	52A*3			
PV Isc	55A*3			
Nominal output voltage	3W/N/PE, 127/220Vac			
Nominal output Frequency	50/60Hz			
Max.output current	43.6A	58.3A	64.0A	73.0A
Max.output power	15.0KW	20.0KW	22.0KW	25.0KW
Max.apparent power	16.6KVA	22.2KVA	24.4KVA	27.8KVA
Power factor range	0.8Leading – 0.8 lagging			
Safety level	Class I			
Ingress Protection	IP 65			
Operation Ambient Temperature	-25°C - +60°C			
Software version	TK1.0			

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-200053

Ratings &
Principle
Characteristics:

Model	MAC 30KTL3-XL	MAC 36KTL3-XL
Max.PV voltage	1100Vdc	
PV voltage range	200V – 1000Vdc	
Max.input current	52A/52A/52A	
PV Isc	55A*3	
Nominal output voltage	3W/N/PE, 127/220Vac	
Nominal output Frequency	50/60Hz	
Max.output current	87.4A	94.5A
Max.output power	30.0KW	36.0KW
Max.apparent power	33.3KVA	36.0KVA
Power factor range	0.8Leading – 0.8 lagging	
Safety level	Class I	
Ingress Protection	IP 65	
Operation Ambient Temperature	-25°C - +60°C	
Software version	TK1.0	

Specification/
Standard:

IEC/EN 62109-1: 2010 Safety of power converters for use in photovoltaic power systems – Part 1: General requirements
IEC/EN 62109-2: 2011 Safety of power converters for use in photovoltaic power systems – Part 2: Particular requirements for inverters