

## Test Verification of Conformity

In the basis of the tests undertaken, the sample(s) of the below product have been found to comply with the requirements of the referenced specifications at the time the tests were carried out.

<b>Applicant Name &amp; Address:</b>	<b>SHENZHEN GROWATT NEW ENERGY TECHNOLOGY CO., LTD</b> 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
<b>Product Description:</b>	PV Grid inverter
<b>Ratings &amp; Principle Characteristics:</b>	See Annex to Test Verification of Conformity
<b>Models:</b>	Growatt 8000 TL3-S, Growatt 9000 TL3-S Growatt 10000 TL3-S, Growatt 11000 TL3-S
<b>Brand Name:</b>	Growatt(logo)
<b>Relevant Standards</b>	EN 50438: 2013, Requirements for micro-generating plants to be connected in parallel with public low-voltage distribution networks Type Verification for Denmark compliance
<b>Verification Issuing Office:</b>	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
<b>Date of Tests:</b>	28 Feb., 2017 – 09 Mar., 2017
<b>Test Report Number(s):</b>	161118023GZU-002

This verification is part of the full test report(s) and should be read in conjunction with them.

Signature

Name: Grady Ye  
Position: Assistant Manager  
Date: 17 Mar 2017



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## Annex to Verification of Conformity

This is an Annex to Test Verification of Conformity with Verification/Report Number(s):  
161118023GZU-002. the issuing office is Intertek Testing Services Shenzhen Ltd. Guangzhou Branch  
(Address: Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD,  
Guangzhou, China).

**Ratings & Principle Characteristics:**

For all models: Ambient Temperature: -25°C - +60°C, IP65, Class I  
AC output rating: Nominal Output Voltage: 3W/N/PE 230Vac/400Vac;  
Nominal Frequency: 50Hz; Power Factor:0.8 Leading – 0.8 Lagging  
For model: Growatt 8000 TL3-S  
DC input:  
Max. PV Voltage: 1000Vdc; DC Voltage Range: 160-1000Vdc; MPPT Voltage  
Range: 360-850Vdc; PV Isc: 16A/16A  
AC output:  
Max. Apparent Power: 8.8kVA; Max Output Current: 3\*13.3A;

For model: Growatt 9000 TL3-S  
DC input:  
Max. PV Voltage: 1000Vdc; DC Voltage Range: 160-1000Vdc; MPPT Voltage  
Range: 400-850Vdc; PV Isc: 16A/16A  
AC output:  
Max. Apparent Power: 9.9kVA; Max Output Current: 3\*15A;

For model: Growatt 10000 TL3-S  
DC input:  
Max. PV Voltage: 1000Vdc; DC Voltage Range: 160-1000Vdc; MPPT Voltage  
Range: 450-850Vdc; PV Isc: 16A/16A  
AC output:  
Max. Apparent Power: 11kVA; Max Output Current: 3\*16.7A;

For model: Growatt 11000 TL3-S  
DC input:  
Max. PV Voltage: 1000Vdc; DC Voltage Range: 160-1000Vdc; MPPT Voltage  
Range: 450-850Vdc; PV Isc: 16A/16A  
AC output:  
Max. Apparent Power: 12.1kVA; Max Output Current: 3\*18.3A;

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D.2.3 Over-/under-voltage				P	
		Over Voltage stage 1		Under Voltage	
Parameter		Voltage	Disconnection Time	Voltage	Disconnection Time
Protection limit		253V	39s-40s	207V	9s-10s
Actual setting (as applied to interface protection)		253V	39s	207V	9s
Trip value (test result)-1	All phases	253.13V	39.38s	207.79V	9.52s
	Phase R	252.83V	39.33s	208.10V	9.50s
	Phase S	253.94V	39.05s	208.56V	9.49s
	Phase T	253.09V	39.32s	207.54V	9.51s
Trip value (test result)-2	All phases	252.84V	39.32s	208.19V	9.50s
	Phase R	252.93V	39.31s	208.13V	9.51s
	Phase S	253.89V	39.32s	208.77V	9.50s
	Phase T	252.76V	39.36s	207.83V	9.50s

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Trip value (test result)-3	All phases	252.87V	39.32s	208.16V	9.52s
	Phase R	252.91V	39.35s	208.15V	9.52s
	Phase S	253.93V	39.34s	208.75V	9.51s
	Phase T	252.76V	39.32s	207.63V	9.50s
Trip value (test result)-4	All phases	253.19V	39.33s	208.18V	9.50s
	Phase R	252.89V	39.35s	208.09V	9.50s
	Phase S	253.89V	39.32s	208.82V	9.52s
	Phase T	252.77V	39.32s	207.65V	9.52s
Trip value (test result)-5	All phases	253.17V	39.33s	208.17V	9.51s
	Phase R	252.91V	39.34s	208.09V	9.52s
	Phase S	253.95V	39.32s	208.78V	9.49s
	Phase T	252.78V	39.31s	207.64V	9.52s

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Parameter		Over Voltage stage 2		Under Voltage	
		Voltage	Disconnection Time	Voltage	Disconnection Time
Protection limit		259.9V	0.1s-0.2s	--	--
Actual setting (as applied to interface protection)		259.9V	0.19s	--	--
Trip value (test result)-1	All phases	258.40V	0.191s	--	--
	Phase R	258.42V	0.180s	--	--
	Phase S	258.60V	0.175s	--	--
	Phase T	258.55V	0.185s	--	--
Trip value (test result)-2	All phases	258.74V	0.195s	--	--
	Phase R	258.31V	0.188s	--	--
	Phase S	258.52V	0.174s	--	--
	Phase T	258.31V	0.187s	--	--
Trip value (test result)-3	All phases	258.68V	0.184s	--	--
	Phase R	258.43V	0.180s	--	--
	Phase S	258.50V	0.183s	--	--
	Phase T	258.64V	0.185s	--	--

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Trip value (test result)-4	All phases	258.69V	0.179s	--	--
	Phase R	258.26V	0.187s	--	--
	Phase S	258.50V	0.185s	--	--
	Phase T	258.37V	0.186s	--	--
Trip value (test result)-5	All phases	258.96V	0.193s	--	--
	Phase R	258.53V	0.187s	--	--
	Phase S	258.57V	0.195s	--	--
	Phase T	258.31V	0.184s	--	--

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Over- /under-frequency				
Parameter	Over Frequency		Under Frequency	
	Frequency	Time	Frequency	Time
Protection limit	52.0Hz	0.1-0.2s	47.5Hz	0.1-0.2s
Actual setting (as applied to interface protection)	52.0Hz	0.19s	47.5Hz	0.19s
Trip value (test result)-1	51.98Hz	0.192s	47.49Hz	0.194s
Trip value (test result)-2	51.98Hz	0.198s	47.49Hz	0.198s
Trip value (test result)-3	51.98Hz	0.190s	47.49Hz	0.196s
Trip value (test result)-4	51.98Hz	0.188s	47.49Hz	0.198s
Trip value (test result)-5	51.98Hz	0.190s	47.49Hz	0.196s

LOM test						
Method used	EN 62116					
Balancing load on island network	33% of -5% Q Test 22	66% of -5% Q Test 12	100% of -5% P Test 5	33% of +5% Q Test 31	66% of +5% Q Test 21	100% of +5% P Test 10
Trip time	129.0ms	103.0ms	126.0ms	118.0ms	98.0ms	123.0ms

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