

SOFAR 3.3-12KTLX-G3

3.3 / 4.4 / 5.5 / 6.6 / 8.8 / 11 / 10 / 12 kW

THREE-PHASE DUAL MPPT



Product advantages

- Max. efficiency up to 98.5%
- Low start-up voltage, wide MPPT voltage
- Maximum DC input voltage 1100 V
- Smart string level monitoring
- Remote firmware upgrade
- Natural cooling, no fans, low noise
- Type II SPD for both DC and AC side



Model	SOFAR 3.3KTLX-G3	SOFAR 4.4KTLX-G3	SOFAR 5.5KTLX-G3	SOFAR 6.6KTLX-G3	SOFAR 8.8KTLX-G3	SOFAR 11KTLX-G3	SOFAR 10KTLX-G3-A	SOFAR 12KTLX-G3
Input (DC)								
Max. input voltage	1100V							
Rated input voltage	650V							
Start-up voltage	160V							
MPPT operating voltage range	140V-1000V							
Number of MPP trackers	2							
Number of DC inputs	1/1						1/2	
Max. input MPPT current	15A/15A						15A/30A	
Max. input short circuit current	22.5A/22.5A						22.5A/45A	
Output (AC)								
Rated output power	3000W	4000W	5000W	6000W	8000W	10000W	10000W	12000W
Max. apparent power	3300VA	4400VA	5500VA	6600VA	8800VA	11000VA	10000VA	13200VA
Max. output current	5A	6.7A	8.3A	10A	13.3A	16.7A	15.2A	20A
Rated output voltage	3/N/PE, 230/400Vac							
Output voltage range	310Vac-480Vac							
Rated output frequency	50/60Hz							
Output frequency range	45Hz-55Hz/55Hz-65Hz							
Active power adjustable range	0~100%							
THDi	<3%							
Power factor	1 (adjustable +/-0.8)							
Efficiency								
Max. efficiency	98.40%				98.50%			
European efficiency	97.50%				98.00%			
Protection								
DC reverse polarity protection	Yes							
Anti-islanding protection	Yes							
Leakage current protection	Yes							
Ground fault monitoring	Yes							
PV-array string fault monitoring	Yes							
DC switch	Yes							
SPD	PV: type II, AC: type II							
General Data								
Ambient temperature range	-30℃~+60℃							
Self-consumption at night	<1W							
Topology	Transformerless							
Degree of protection	IP65							
Allowable relative humidity range	0~100%							
Max. operating altitude	4000m							
Cooling	Natural							
Dimension (W×H×D)	430×385×182mm							
Weight	17kg					18kg		
Display	LCD & Bluetooth +APP							
Communication	RS485/Wi-Fi							
Standard	IEC/EN 61000-6-1/3, IEC/EN 61000-3-2/3, IEC/EN 61000-3-11/12, IEC 62116, IEC 61727, IEC 61683, IEC 60068-1/2/14/30, IEC/EN 62109-1/2, G98/G99, VDE-AR-N 4105, VDE V 0126-1-1, EN 50549-1, UNE 217002-2020							

*All specifications are subject to change without notice.

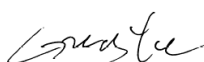
Certificate of Conformity

Certificate Number: CN-PV-220238

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

Applicant:	Shenzhen SOFARSOLAR Co., Ltd. 11/F., Gaoxinqi Technology Building, No.67 Area, Xingdong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, China
Product:	Solar Grid-tied Inverter
Ratings & Principle Characteristics:	See appendix of Certificate of Conformity
Model:	SOFAR 3.3KTLX-G3, SOFAR 4.4KTLX-G3, SOFAR 5KTLX-G3-A SOFAR 5.5KTLX-G3, SOFAR 6.6KTLX-G3, SOFAR 8.8KTLX-G3, SOFAR 8.8KTLX-G3-A, SOFAR 11KTLX-G3, SOFAR 10KTLX-G3-A SOFAR 11KTLX-G3-A, SOFAR 12KTLX-G3
Brand Name<s>:	
Product Complies with:	Ordinul ANRE Nr. 208/14.12.2018 For the approval of the Technical Regulation concerning the technical requirements for connection to electricity networks of public interest for generating modules, power plants consisting of generating modules and power plants consisting of offshore generating modules (offshore) Type approval for type B
Certificate Issuing Office Name & Address:	Intertek Testing Services Ltd. Shanghai West Area, 2 nd Floor, No. 707, Zhangyang Road China (Shanghai) Pilot Free Trade Zone, Shanghai, P. R. China
Test Report No.<s>:	221010042GZU-001

Additional information in Appendix.



Signature

Certification Manager: Grady Ye

Date: 10 November 2022

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-220238.

MODEL	SOFAR 3.3KTLX-G3	SOFAR 4.4KTLX-G3	SOFAR 5KTLX-G3-A	SOFAR 5.5KTLX-G3
Max PV voltage	1100Vdc			
MPPT Voltage range	140-1000Vdc			
Max. input current	15/15A			
PV Isc	22.5/22.5A			
Rated power(W)	3000	4000	5000	5000
Max.apparent power (VA)	3300	4400	5000	5500
Max output current	5.0 A	6.7 A	7.6 A	8.3 A
Output voltage	3/N/PE 220Vac/380Vac, 230Vac/400Vac			
Nominal Frequency	50 Hz			
Power Factor	1 default (adjustable+/-0.8)			
Ambient Temperature	-30°C - +60°C			
Protection Degree	IP65			
Protection Class	Class I			
Software Version	V000001			

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-220238.

MODEL	SOFAR 6.6KTLX-G3	SOFAR 8.8KTLX-G3	SOFAR 8.8KTLX-G3-A	SOFAR 10KTLX-G3-A
Max PV voltage	1100Vdc			
MPPT Voltage range	140-1000Vdc			
Max. input current	15/15A		15/30A	
PV Isc	22.5/22.5A		22.5A/45A	
Rated power(W)	6000	8000	8000	10000
Max.apparent power (VA)	6600	8800	8800	10000
Max output current	10.0 A	13.3 A	13.3 A	15.2 A
Output voltage	3/N/PE 220Vac/380Vac, 230Vac/400Vac			
Nominal Frequency	50 Hz			
Power Factor	1 default (adjustable+/-0.8)			
Ambient Temperature	-30°C - +60°C			
Protection Degree	IP65			
Protection Class	Class I			
Software Version	V000001			

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-220238.

MODEL	SOFAR 11KTLX-G3	SOFAR 11KTLX-G3-A	SOFAR 12KTLX-G3
Max PV voltage	1100Vdc		
MPPT Voltage range	140-1000Vdc		
Max. input current	15A/15A	15A/30A	
PV Isc	22.5/22.5A	22.5A/45A	
Rated power(W)	10000	10000	12000
Max.apparent power (VA)	11000	11000	13200
Max output current	16.7 A	16.7 A	20.0 A
Output voltage	3/N/PE 220Vac/380Vac, 230Vac/400Vac		
Nominal Frequency	50 Hz		
Power Factor	1 default (adjustable+/-0.8)		
Ambient Temperature	-30°C - +60°C		
Protection Degree	IP65		
Protection Class	Class I		
Software Version	V000001		

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VERIFICATION OF RED COMPLIANCE

Verification No.: GZCR2109020996PVV
 Applicant: Shenzhen SOFARSOLAR Co., Ltd.
 Address of Applicant: 401, Building 4, Antongda Industrial Park, District 68, Xingdong Community, Xinan Street, Baoan District, Shenzhen, China
 Manufacturer: Shenzhen SOFARSOLAR Co., Ltd.
 Address of Manufacturer: 401, Building 4, Antongda Industrial Park, District 68, Xingdong Community, Xinan Street, Baoan District, Shenzhen, China
 Factory: Dongguan SOFAR SOLAR Co., Ltd.
 Address of Factory: 1F - 6F, Building E, No. 1 JinQi Road, Bihu Industrial Park, Wulian, Village, Fenggang Town, Dongguan City
 Product Description: PV inverter
 Model No.: SOFAR 3.3KTLX-G3, SOFAR 4.4KTLX-G3, SOFAR 5KTLX-G3-A, SOFAR 5.5KTLX-G3, SOFAR 6.6KTLX-G3, SOFAR 8.8KTLX-G3-A, SOFAR 8.8KTLX-G3, SOFAR 10KTLX-G3-A, SOFAR 11KTLX-G3-A, SOFAR 11KTLX-G3, SOFAR 12KTLX-G3
 Trade Mark: 
 Sufficient samples of the product have been tested and found to be in conformity with
 Test Standards: EN 61000-6-3: 2007+A1:2011, EN IEC 61000-6-1: 2019
 EN 301 489-1 V2.2.3, EN 301 489-17 V3.2.4
 EN 300 328 V2.2.2, EN 62479: 2010
 As shown in the
 Test Report Number(s): GZCR210902099601, GZCR210902099602
 GZCR210902099603, GZCR210902099604

Based on a review of the test report(s) detailed above, this apparatus meets the requirements of above standards. The product is in conformity with the essential requirements of Article 3.1 (a) the protection of the health, 3.1 (b) an adequate level of electromagnetic compatibility and 3.2 effective use of the spectrum of 2014/53/EU. The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.



Date: 2021-10-14

Test Verification of Conformity

Verification Number: 211108059GZU-VOC005

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 directives listed on this verification at the time the tests were carried out. Other standards and Directives 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  mark directives 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 SOFARSOLAR Co., Ltd. 11/F., Gaoxinqi Technology Building, No.67 Area, Xingdong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, China
Product Description:	Inverter
Ratings & Principle Characteristics:	NA
Models/Type References:	SOFAR 12KTLX-G3, SOFAR 3.3KTLX-G3, SOFAR 4.4KTLX-G3, SOFAR 5KTLX-G3-A, SOFAR 5.5KTLX-G3, SOFAR 6.6KTLX-G3, SOFAR 8.8KTLX-G3, SOFAR 8.8KTLX-G3-A, SOFAR 10KTLX-G3-A, SOFAR 11KTLX-G3, SOFAR 11KTLX-G3-A
Brand Name:	
Relevant Standards/Directives:	This verification and corresponding evaluation report is considered to constitute technical documentation sufficient for an EC Declaration of Conformity and CE marking of the product according to Directive 2011/65/EU and (EU) 2015/863 of the European Parliament and of the Council with regard to the restriction of the use of certain hazardous substances in electrical and electronic equipment.
Verification Issuing Office Name & Address:	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Room 02, 1-8F. & Room 01, 101/E201/E301/E401/E501/E601/E701/E801, No.7-2, Caipin Road, Science City, GETDD, Guangzhou, Guangdong, China.
Date of Tests:	Nov 9, 2021 to Jan 10, 2022
Test Report Number(s):	211108059GZU-005

Signature



Name: Hay.zhao

Position: Engineer

Date: 18 May, 2022

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.

Certificate of Conformity

Certificate Number: CN-PV-210111

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 SOFARSOLAR Co., Ltd. 401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community, XinAn Street, BaoAn District, Shenzhen, China
Product Description:	Anti-backflow system
Ratings & Principle Characteristics:	See Annex to Certificate of Conformity
Models/Type References:	SOFAR 3.3KTLX-G3, SOFAR 4.4KTLX-G3, SOFAR 5KTLX-G3-A SOFAR 5.5KTLX-G3, SOFAR 6.6KTLX-G3, SOFAR 8.8KTLX-G3, SOFAR 8.8KTLX-G3-A, SOFAR 11KTLX-G3, SOFAR 10KTLX-G3-A SOFAR 11KTLX-G3-A, SOFAR 12KTLX-G3
Brand Name:	
Specification/Standard:	UNE 217001 IN: October 2020 Tests for systems that avoid the discharge of energy to the distribution network
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 Number:	210416108GZU-015
Additional information in Appendix.	



Signature

Certification Manager: Grady Ye

Date: 17 May 2021

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-210111

MODEL	SOFAR 3.3KTLX-G3	SOFAR 4.4KTLX-G3	SOFAR 5KTLX-G3-A	SOFAR 5.5KTLX-G3
Max PV voltage	1100Vdc			
MPPT Voltage range	140-1000Vdc			
Max. input current	15/15A			
PV Isc	22.5/22.5A			
Rated power(W)	3000	4000	5000	5000
Max.apparent power (VA)	3300	4400	5000	5500
Max output current	3×5.0 A	3×6.7 A	3×7.6 A	3×8.3 A
Output voltage	3W/N/PE 230Vac/400Vac			
Nominal Frequency	50 Hz			
Power Factor	1 default (adjustable+/-0.8)			
Ambient Temperature	-30°C - +60°C			
Protection Degree	IP65			
Protection Class	Class I			
Software Version	V000001			

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-210111

MODEL	SOFAR 6.6KTLX-G3	SOFAR 8.8KTLX-G3	SOFAR 8.8KTLX-G3-A	SOFAR 10KTLX-G3-A
Max PV voltage	1100Vdc			
MPPT Voltage range	140-1000Vdc			
Max. input current	15/15A		15/30A	
PV Isc	22.5/22.5A		22.5A/45A	
Rated power(W)	6000	8000	8000	10000
Max.apparent power (VA)	6600	8800	8800	10000
Max output current	3×10.0 A	3×13.3 A	3×13.3 A	3×15.2 A
Output voltage	3W/N/PE 230Vac/400Vac			
Nominal Frequency	50 Hz			
Power Factor	1 default (adjustable+/-0.8)			
Ambient Temperature	-30℃ - +60℃			
Protection Degree	IP65			
Protection Class	Class I			
Software Version	V000001			

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APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-210111

MODEL	SOFAR 11KTLX-G3	SOFAR 11KTLX-G3-A	SOFAR 12KTLX-G3
Max PV voltage	1100Vdc		
MPPT Voltage range	140-1000Vdc		
Max. input current	15A/15A	15A/30A	
PV Isc	22.5/22.5A	22.5A/45A	
Rated power(W)	10000	10000	12000
Max.apparent power (VA)	11000	11000	13200
Max output current	3×16.7 A	3×16.7 A	3×20.0 A
Output voltage	3W/N/PE 230Vac/400Vac		
Nominal Frequency	50 Hz		
Power Factor	1 default (adjustable+/-0.8)		
Ambient Temperature	-30°C - +60°C		
Protection Degree	IP65		
Protection Class	Class I		
Software Version	V000001		

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Unit Certificate (Einheitenzertifikat)

Certificate No. (Zertifikats-Nr.): CN-PV-210109R1

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

Anhand der durchgeführten Tests wurde festgestellt, dass die Probe (n) des nachstehenden Produkts zum Zeitpunkt der Durchführung der Tests den Anforderungen der angegebenen Spezifikation (n) / Norm (en) entsprachen. Dies bedeutet nicht, dass Intertek die Herstellung (en) überwacht oder kontrolliert hat. Der Hersteller stellt sicher, dass der Herstellungsprozess die Übereinstimmung der Produktionseinheiten mit den in diesem Zertifikat genannten geprüften Produkten sicherstellt.

Applicant:
(Antragsteller)

Shenzhen SOFARSOLAR Co., Ltd.
401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community, XinAn Street, BaoAn District, Shenzhen, China

Product:
(Produkt)

Solar Grid-tied inverter
(Umrichter)

Model:
(Modell)

SOFAR 3.3KTLX-G3, SOFAR 4.4KTLX-G3, SOFAR 5KTLX-G3-A
SOFAR 5.5KTLX-G3, SOFAR 6.6KTLX-G3, SOFAR 8.8KTLX-G3,
SOFAR 8.8KTLX-G3-A, SOFAR 11KTLX-G3, SOFAR 10KTLX-G3-A
SOFAR 11KTLX-G3-A, SOFAR 12KTLX-G3

Max. active power P_{EMax}:

(max. Wirkleistung P_{EMax})

3.039KW; 4.050KW; 5.057KW; 5.057KW; 6.069KW; 8.063KW; 8.063KW; 10.101KW;
10.101KW; 10.101KW; 12.091KW

Max. apparent power S_{EMax}:

(max. Scheinleistung S_{EMax})

3.369KVA; 4.476KVA; 5.057KVA; 5.566KVA; 6.698KVA; 8.849KVA; 8.849KVA;
11.075KVA; 10.101KVA; 11.075KVA; 13.404KVA

Rated voltage:

(Bemessungsspannung)

3W/N/PE 230Vac/400Vac

Rated current (AC) I_r:

(Bemessungsstrom (AC) I_r)

5.0A; 6.7A; 7.6A; 8.3A; 10.0A; 13.3A; 13.3A; 15.2A; 16.7A; 16.7A; 20.0A

Initial short-circuit AC current I_k:

(Anfangs-Kurzschlusswechselstrom I_k)

5.0A; 6.7A; 7.6A; 8.3A; 10.0A; 13.3A; 13.3A; 15.2A; 16.7A; 16.7A; 20.0A

Tested according to:

(Geprüft nach)

VDE-AR-N 4105:2018-11 "Erzeugungsanlagen am Niederspannungsnetz"
Technische Mindestanforderungen für Anschluss und Parallelbetrieb von
Erzeugungsanlagen am Niederspannungsnetz
DIN VDE V 0124-100 (VDE V 0124-100):2020-06 "Netzintegration von
Erzeugungsanlagen – Niederspannung"
Prüfanforderungen an Erzeugungseinheiten vorgesehen zum Anschluss und
Parallelbetrieb am Niederspannungsnetz
210416108GZU-014

Test Report No.:

(Prüfbericht-Nr.)

Certificate Issuing Office:

(Stelle des ausgestellten Zertifikats)

Intertek Testing Services Ltd. Shanghai
West Area, 2nd Floor, No. 707, Zhangyang Road
China (Shanghai) Pilot Free Trade Zone, Shanghai, P. R. China

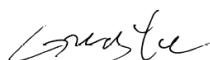
Accredited by ACCREDIA in accordance with ISO/IEC 17065:2012

Replaces certificate CN-PV-210109 dated 14 May 2021

The above designated power generation unit meets the requirements of VDE-AR-N 4105: 2018.

Die oben bezeichnete Erzeugungseinheit erfüllt die Anforderungen der VDE-AR-N 4105: 2018.

See Appendix page for detailed technical information (Detaillierte technische Informationen siehe Anhang).



Signature (Unterschrift)

Certification Manager: Grady Ye

Date (Datum): 14 July 2022



PRD N° 306B

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Dieses Zertifikat ist ausschließlich für den Kunden von Intertek bestimmt und wird gemäß der Vereinbarung zwischen Intertek und seinem Kunden zur Verfügung gestellt. Die Verantwortung und Haftung von Intertek ist auf die Vertragsbedingungen beschränkt. Intertek übernimmt keine Haftung gegenüber anderen Parteien als dem Kunden gemäß der Vereinbarung für Verluste, Kosten oder Schäden, die durch die Verwendung dieses Zertifikats entstehen. Nur der Kunde ist berechtigt, das Kopieren oder Verteilen dieses Zertifikats zuzulassen. Jede Verwendung des Intertek-Namens oder einer seiner Marken für den Verkauf oder die Werbung für das getestete Material, Produkt oder die getestete Dienstleistung muss zuerst von Intertek schriftlich genehmigt werden.

APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Model (Modell)	SOFAR 3.3KTLX- G3	SOFAR 4.4KTLX- G3	SOFAR 5KTLX- G3-A	SOFAR 5.5KTLX- G3	SOFAR 6.6KTLX- G3	SOFAR 8.8KTLX- G3
Max. DC input voltage (Max. DC-Eingangsspannung)	1100Vdc					
Voltage range (Spannungsbereich)	140-1000Vdc					
Max. PV Isc	22.5A/22.5A					
Nominal mains voltage (Netzspannung Batteriespannungsbereich)	3W/N/PE 230Vac/400Vac					
Max. output current (Max. Ausgangsstrom)	3×5.0 A	3×6.7 A	3×7.6 A	3×8.3 A	3×10.0 A	3×13.3 A
Nominal frequency (Nominale Netzfrequenz)	50Hz					
Power factor (Leistungsfaktor)	1 default (adjustable+/-0.8)					
Rated power Nennleistung	3000W	4000W	5000W	5000W	6000W	8000W
Max. apparent power (Max. Scheinleistung)	3300VA	4400VA	5000VA	5500VA	6600VA	8800VA
Ingress protection (Schutzart)	IP65					
Protection class (Schutzklasse)	Class I					
Operating temperature range (Betriebstemperaturbereich)	-30°C - +60°C					
FW-Version	V000001					

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Model (Modell)	SOFAR 8.8KTLX-G3-A	SOFAR 10KTLX-G3-A	SOFAR 11KTLX-G3	SOFAR 11KTLX-G3-A	SOFAR 12KTLX-G3
Max. DC input voltage (Max. DC-Eingangsspannung)	1100Vdc				
Voltage range (Spannungsbereich)	140-1000Vdc				
Max. PV Isc	22.5A/45A		22.5A/22.5A	22.5A/45A	
Nominal mains voltage (Netzspannung Batteriespannungsbereich)	3W/N/PE 230Vac/400Vac				
Max. output current (Max. Ausgangsstrom)	3×13.3 A	3×15.2 A	3×16.7 A	3×16.7 A	3×20.0 A
Nominal frequency (Nominale Netzfrequenz)	50Hz				
Power factor (Leistungsfaktor)	1 default (adjustable+/-0.8)				
Rated power Nennleistung	8000W	10000W	10000W	10000W	12000W
Max. apparent power (Max. Scheinleistung)	8800VA	10000VA	11000VA	11000VA	13200VA
Ingress protection (Schutzart)	IP65				
Protection class (Schutzklasse)	Class I				
Operating temperature range (Betriebstemperaturbereich)	-30°C - +60°C				
FW-Version	V000001				

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

E.5 of (von) VDE-AR-N 4105:2018-11

Test report "Network interactions" for power generation units with an input current > 75 A
Prüfbericht „Netzurückwirkungen“ für Erzeugungseinheiten mit einem Eingangsstrom > 75 A

Extract of the test report for power generation units (Auszug aus dem Prüfbericht für Erzeugungseinheiten) “Determination of electrical properties” („Bestimmung der elektrischen Eigenschaften“)				No. (Nr.): 210416108GZU-014 (consecutive no. (laufende Nr.))			
System manufacturer: (Anlagenhersteller)		Shenzhen SOFARSOLAR Co., Ltd. 401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community, XinAn Street, BaoAn District, Shenzhen, China					
Manufacturer indications: (Herstellerangaben)		System type (Anlagenart) (BHKW, PV-WR, ...)		PV			
		Max. active power PEmax (maximale Wirkleistung PEmax)		SOFAR 3.3KTLX-G3		SOFAR 4.4KTLX-G3	SOFAR 5.5KTLX-G3
				3.039KW		4.050KW	5.057KW
				SOFAR 6.6KTLX-G3		SOFAR 6.6KTLX-X	SOFAR 8.8KTLX-G3/-A
				6.069KW		6.636KW	8.063KW
				SOFAR 11KTLX-G3/-A		SOFAR 12KTLX-G3	--
				10.101KW		12.091KW	---
				Rated voltage (Bemessungsspannung)		3W/N/PE 230Vac/400Vac	
Measurement period (Messzeitraum)		From (vom) YYYY-MM-DD to (bis) YYYY-MM-DD		2021-Mar-30 to 2021-May-09			
Rapid voltage changes (Schnelle Spannungsänderungen)				ki = 0.420			
Connection without provisions (regarding the primary energy carrier) (Einschalten ohne Vorgabe (zum Primärenergieträger))				ki = 0.162			
Most adverse case when switching between generator levels (Ungünstigster Fall beim Umschalten der Generatorstufen)				ki = (Die EZE verfügt über keine Generatorstufen / The PGU does not provide generator levels)			
Connection at nominal conditions (of the primary energy carrier) (Einschalten bei Nennbedingungen (des Primärenergieträgers))				ki = 0.158			
Disconnection at rated power (Ausschalten bei Bemessungsleistung)				ki = 0.420			
Worst value of all switching operations (Schlechtester Wert aller Schaltvorgänge)				kimax = 0.420			
Flicker	Network impedance angle φ_k (Netzimpedanzwinkel φ_k)		30°	50°	70°	85°	
	Initial flicker factor c (Anlagenflickerbeiwert c)		1.70	1.68	1.61	1.63	

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Model: SOFAR 3.3KTLX-G3										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Ordinal number (Ordnungszahl)	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2	0.0644	0.0736	0.1149	0.0989	0.0897	0.0690	0.0690	0.0759	0.0299	0.0345
3	0.1471	0.0759	0.0736	0.0736	0.0736	0.0782	0.0759	0.0805	0.0943	0.1057
4	0.0713	0.0644	0.0276	0.0368	0.0483	0.0483	0.0368	0.0322	0.0276	0.0299
5	0.2828	0.1885	0.3632	0.4138	0.4782	0.6874	1.0322	1.5218	2.0184	2.5356
6	0.0299	0.0253	0.0230	0.0253	0.0230	0.0230	0.0276	0.0253	0.0253	0.0230
7	0.0966	0.0621	0.1908	0.2483	0.3241	0.5310	0.8230	1.1563	1.4069	1.5908
8	0.0253	0.0391	0.0874	0.0690	0.0690	0.0529	0.0552	0.0667	0.0414	0.0322
9	0.0391	0.0391	0.0391	0.0391	0.0391	0.0368	0.0345	0.0368	0.0414	0.0483
10	0.0184	0.0253	0.0598	0.0460	0.0460	0.0322	0.0345	0.0368	0.0322	0.0437
11	0.0989	0.1540	0.2828	0.2759	0.3103	0.3724	0.4368	0.5011	0.5126	0.5149
12	0.0529	0.0230	0.0230	0.0253	0.0253	0.0253	0.0299	0.0299	0.0276	0.0276
13	0.1448	0.1034	0.2345	0.2253	0.2414	0.2621	0.3126	0.3701	0.4023	0.4690
14	0.0552	0.0368	0.0828	0.0598	0.0460	0.0368	0.0460	0.0621	0.0598	0.0644
15	0.0552	0.0253	0.0276	0.0276	0.0276	0.0322	0.0368	0.0345	0.0483	0.0391
16	0.0184	0.0322	0.0805	0.0529	0.0391	0.0276	0.0299	0.0299	0.0345	0.0391
17	0.1241	0.1632	0.2575	0.2759	0.2552	0.2506	0.2920	0.3172	0.3425	0.2989
18	0.0368	0.0253	0.0253	0.0253	0.0276	0.0253	0.0276	0.0276	0.0276	0.0276
19	0.1057	0.1609	0.2276	0.2391	0.2322	0.1908	0.1724	0.2529	0.4138	0.5908
20	0.0230	0.0345	0.0943	0.0621	0.0437	0.0368	0.0483	0.0575	0.0322	0.0345
21	0.0460	0.0276	0.0276	0.0276	0.0345	0.0391	0.0414	0.0414	0.0483	0.0345
22	0.0276	0.0391	0.0920	0.0529	0.0391	0.0322	0.0322	0.0299	0.0276	0.0299
23	0.1448	0.1034	0.2460	0.1793	0.2414	0.2920	0.3057	0.2989	0.2966	0.2598
24	0.0483	0.0230	0.0230	0.0253	0.0276	0.0276	0.0299	0.0276	0.0322	0.0276
25	0.1632	0.0897	0.2207	0.1586	0.2023	0.2230	0.1057	0.1126	0.2000	0.3218
26	0.0345	0.0368	0.0920	0.0552	0.0437	0.0299	0.0437	0.0506	0.0391	0.0391
27	0.0184	0.0253	0.0230	0.0253	0.0299	0.0414	0.0391	0.0437	0.0460	0.0460
28	0.0483	0.0506	0.0966	0.0437	0.0299	0.0276	0.0322	0.0322	0.0391	0.0345
29	0.1218	0.0437	0.1264	0.1310	0.0966	0.1425	0.2115	0.2759	0.3034	0.3011
30	0.0414	0.0184	0.0207	0.0207	0.0253	0.0253	0.0276	0.0276	0.0299	0.0322
31	0.1931	0.1149	0.1264	0.1218	0.0989	0.0920	0.0345	0.0506	0.0989	0.1471
32	0.0345	0.0299	0.0736	0.0437	0.0368	0.0253	0.0322	0.0414	0.0322	0.0322
33	0.0437	0.0207	0.0207	0.0230	0.0276	0.0345	0.0299	0.0368	0.0437	0.0414
34	0.0529	0.0621	0.1034	0.0391	0.0253	0.0276	0.0322	0.0322	0.0345	0.0299
35	0.1103	0.0966	0.0529	0.0483	0.0460	0.0621	0.1471	0.2000	0.2345	0.2552
36	0.0299	0.0138	0.0184	0.0184	0.0207	0.0230	0.0253	0.0253	0.0276	0.0299
37	0.1287	0.0460	0.1195	0.1471	0.1126	0.1241	0.0989	0.1011	0.0828	0.1195
38	0.0368	0.0414	0.0575	0.0322	0.0345	0.0230	0.0253	0.0276	0.0253	0.0299
39	0.0276	0.0207	0.0184	0.0230	0.0276	0.0299	0.0276	0.0299	0.0391	0.0414
40	0.0552	0.0667	0.1057	0.0437	0.0253	0.0299	0.0299	0.0322	0.0299	0.0276

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Inter-harmonics (Zwischenharmonische)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
75	0.0276	0.0279	0.0282	0.0288	0.0303	0.0312	0.0318	0.0352	0.0364	0.0379
125	0.0249	0.0261	0.0267	0.0273	0.0288	0.0285	0.0306	0.0324	0.0282	0.0285
175	0.0297	0.0312	0.0315	0.0331	0.0334	0.0324	0.0349	0.0379	0.0343	0.0352
225	0.0288	0.0324	0.0331	0.0340	0.0352	0.0331	0.0355	0.0394	0.0361	0.0367
275	0.0312	0.0358	0.0376	0.0391	0.0391	0.0373	0.0409	0.0439	0.0406	0.0412
325	0.0297	0.0349	0.0367	0.0376	0.0376	0.0358	0.0400	0.0433	0.0391	0.0394
375	0.0318	0.0370	0.0397	0.0403	0.0418	0.0391	0.0433	0.0475	0.0427	0.0421
425	0.0294	0.0355	0.0382	0.0385	0.0397	0.0373	0.0412	0.0460	0.0409	0.0412
475	0.0303	0.0367	0.0406	0.0406	0.0412	0.0394	0.0436	0.0481	0.0415	0.0424
525	0.0303	0.0358	0.0400	0.0409	0.0421	0.0397	0.0454	0.0499	0.0433	0.0439
575	0.0303	0.0349	0.0382	0.0406	0.0418	0.0400	0.0454	0.0508	0.0439	0.0454
625	0.0300	0.0340	0.0373	0.0394	0.0412	0.0400	0.0460	0.0502	0.0448	0.0451
675	0.0306	0.0343	0.0379	0.0394	0.0403	0.0391	0.0457	0.0505	0.0454	0.0451
725	0.0318	0.0358	0.0373	0.0373	0.0385	0.0376	0.0436	0.0505	0.0451	0.0451
775	0.0334	0.0379	0.0397	0.0382	0.0385	0.0376	0.0421	0.0490	0.0445	0.0454
825	0.0337	0.0394	0.0412	0.0403	0.0403	0.0376	0.0424	0.0484	0.0439	0.0463
875	0.0352	0.0415	0.0418	0.0421	0.0409	0.0385	0.0409	0.0466	0.0436	0.0454
925	0.0358	0.0415	0.0427	0.0427	0.0427	0.0397	0.0403	0.0451	0.0418	0.0445
975	0.0379	0.0418	0.0445	0.0454	0.0463	0.0430	0.0439	0.0454	0.0430	0.0448
1025	0.0358	0.0397	0.0418	0.0427	0.0439	0.0427	0.0442	0.0454	0.0418	0.0418
1075	0.0364	0.0400	0.0427	0.0430	0.0460	0.0451	0.0463	0.0466	0.0442	0.0433
1125	0.0340	0.0370	0.0406	0.0424	0.0448	0.0448	0.0469	0.0469	0.0436	0.0430
1175	0.0340	0.0373	0.0400	0.0421	0.0445	0.0448	0.0469	0.0469	0.0448	0.0433
1225	0.0321	0.0343	0.0379	0.0412	0.0433	0.0448	0.0463	0.0484	0.0460	0.0442
1275	0.0321	0.0331	0.0370	0.0403	0.0430	0.0445	0.0466	0.0475	0.0463	0.0454
1325	0.0309	0.0318	0.0352	0.0385	0.0421	0.0439	0.0466	0.0487	0.0478	0.0466
1375	0.0303	0.0303	0.0343	0.0373	0.0409	0.0427	0.0460	0.0475	0.0487	0.0478
1425	0.0294	0.0294	0.0324	0.0364	0.0400	0.0415	0.0451	0.0463	0.0487	0.0493
1475	0.0282	0.0285	0.0318	0.0355	0.0397	0.0418	0.0445	0.0463	0.0490	0.0499
1525	0.0276	0.0273	0.0306	0.0343	0.0379	0.0406	0.0433	0.0457	0.0496	0.0517
1575	0.0267	0.0261	0.0291	0.0340	0.0373	0.0391	0.0427	0.0463	0.0475	0.0502
1625	0.0258	0.0255	0.0285	0.0321	0.0367	0.0400	0.0418	0.0454	0.0493	0.0526
1675	0.0255	0.0252	0.0285	0.0318	0.0361	0.0379	0.0409	0.0469	0.0475	0.0511
1725	0.0255	0.0240	0.0270	0.0315	0.0349	0.0385	0.0412	0.0427	0.0496	0.0553
1775	0.0237	0.0237	0.0270	0.0306	0.0334	0.0367	0.0394	0.0460	0.0460	0.0511
1825	0.0234	0.0219	0.0252	0.0291	0.0334	0.0382	0.0412	0.0433	0.0472	0.0517
1875	0.0222	0.0222	0.0258	0.0285	0.0315	0.0346	0.0382	0.0442	0.0448	0.0490
1925	0.0216	0.0207	0.0234	0.0273	0.0318	0.0361	0.0379	0.0424	0.0439	0.0493
1975	0.0210	0.0204	0.0240	0.0267	0.0306	0.0321	0.0370	0.0421	0.0436	0.0475

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Higher frequencies (Höhere Frequenzen)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2.1	0.1848	0.1286	0.1589	0.1899	0.1595	0.1610	0.1959	0.2389	0.2623	0.2716
2.3	0.1307	0.0943	0.1755	0.1487	0.1016	0.1076	0.1493	0.1980	0.2290	0.2332
2.5	0.1283	0.1412	0.1208	0.1529	0.1731	0.1310	0.1457	0.1598	0.1619	0.1674
2.7	0.1409	0.1535	0.1773	0.2133	0.1932	0.1385	0.1983	0.2779	0.3092	0.2875
2.9	0.0934	0.1004	0.0640	0.1166	0.1442	0.1319	0.1469	0.2620	0.3071	0.2617
3.1	0.1361	0.0964	0.1283	0.1373	0.1010	0.0730	0.0829	0.1112	0.1562	0.1863
3.3	0.1130	0.1196	0.1043	0.1220	0.1301	0.1331	0.1217	0.1773	0.2665	0.2746
3.5	0.1088	0.0679	0.0721	0.0925	0.0955	0.0835	0.0871	0.1004	0.1442	0.1571
3.7	0.1133	0.0983	0.0913	0.1037	0.0967	0.1073	0.1073	0.1136	0.1241	0.1322
3.9	0.0958	0.1010	0.0595	0.1109	0.1172	0.1163	0.1172	0.1154	0.1235	0.1265
4.1	0.0712	0.0586	0.0787	0.0850	0.0922	0.0886	0.0973	0.1130	0.1079	0.0983
4.3	0.0778	0.0667	0.0874	0.1307	0.1373	0.1325	0.1310	0.1073	0.0958	0.1247
4.5	0.0883	0.0583	0.0778	0.1439	0.1478	0.1337	0.1373	0.1481	0.1541	0.1644
4.7	0.0748	0.0634	0.0766	0.1067	0.1256	0.1241	0.1283	0.1346	0.1229	0.1325
4.9	0.0649	0.0556	0.0715	0.1088	0.1028	0.0967	0.1151	0.1668	0.1770	0.1544
5.1	0.0475	0.0484	0.0493	0.0808	0.0793	0.0712	0.0769	0.1052	0.1268	0.1220
5.3	0.0358	0.0460	0.0433	0.0514	0.0520	0.0499	0.0538	0.0664	0.0757	0.0943
5.5	0.0364	0.0379	0.0370	0.0448	0.0391	0.0436	0.0469	0.0529	0.0565	0.0580
5.7	0.1115	0.1109	0.1109	0.1154	0.1139	0.1145	0.1166	0.1181	0.1187	0.1211
5.9	0.0285	0.0294	0.0324	0.0334	0.0321	0.0337	0.0349	0.0358	0.0355	0.0376
6.1	0.0228	0.0246	0.0270	0.0285	0.0279	0.0276	0.0267	0.0270	0.0276	0.0315
6.3	0.0267	0.0273	0.0270	0.0282	0.0288	0.0276	0.0267	0.0264	0.0267	0.0297
6.5	0.0210	0.0237	0.0240	0.0246	0.0252	0.0243	0.0237	0.0237	0.0243	0.0246
6.7	0.0249	0.0255	0.0264	0.0270	0.0276	0.0270	0.0264	0.0264	0.0264	0.0276
6.9	0.0306	0.0315	0.0337	0.0337	0.0349	0.0340	0.0337	0.0337	0.0340	0.0349
7.1	0.1088	0.1094	0.1097	0.1115	0.1109	0.1103	0.1112	0.1124	0.1127	0.1139
7.3	0.0216	0.0225	0.0246	0.0240	0.0246	0.0249	0.0255	0.0255	0.0261	0.0267
7.5	0.0300	0.0303	0.0315	0.0318	0.0324	0.0321	0.0321	0.0321	0.0321	0.0324
7.7	0.0168	0.0171	0.0183	0.0186	0.0189	0.0186	0.0186	0.0189	0.0189	0.0189
7.9	0.0135	0.0138	0.0147	0.0150	0.0159	0.0156	0.0153	0.0153	0.0153	0.0159
8.1	0.0138	0.0141	0.0144	0.0150	0.0159	0.0153	0.0156	0.0159	0.0159	0.0165
8.3	0.0135	0.0138	0.0141	0.0150	0.0153	0.0150	0.0153	0.0156	0.0159	0.0162
8.5	0.0126	0.0126	0.0135	0.0141	0.0147	0.0144	0.0147	0.0150	0.0147	0.0150
8.7	0.0132	0.0135	0.0138	0.0147	0.0156	0.0150	0.0153	0.0156	0.0153	0.0159
8.9	0.0117	0.0123	0.0129	0.0132	0.0138	0.0138	0.0135	0.0135	0.0135	0.0141

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Model: SOFAR 4.4KTLX-G3										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Ordinal number (Ordnungszahl)	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2	0.0586	0.0603	0.0621	0.0948	0.0810	0.0983	0.0931	0.0983	0.0845	0.1241
3	0.1466	0.1776	0.1259	0.1621	0.1810	0.2052	0.2414	0.2638	0.2810	0.2379
4	0.0603	0.0621	0.0569	0.0500	0.0914	0.0672	0.0483	0.0259	0.0448	0.0310
5	0.1224	0.1914	0.3276	0.3586	0.4983	0.8397	1.2828	1.6810	2.4138	3.5345
6	0.0190	0.0190	0.0310	0.0276	0.0259	0.0517	0.0328	0.0293	0.0241	0.0328
7	0.1138	0.0879	0.1810	0.2293	0.3241	0.5397	0.8534	1.1328	1.1879	1.1155
8	0.0362	0.0310	0.0448	0.0483	0.0500	0.0414	0.0448	0.0448	0.0517	0.0655
9	0.0310	0.0362	0.0310	0.0638	0.0621	0.0638	0.0690	0.0810	0.0655	0.1224
10	0.0241	0.0103	0.0310	0.0293	0.0362	0.0259	0.0293	0.0172	0.0500	0.0552
11	0.0828	0.2034	0.2190	0.2276	0.3155	0.3914	0.4431	0.4448	0.4759	0.4638
12	0.0190	0.0207	0.0362	0.0362	0.0362	0.0207	0.0293	0.0379	0.0414	0.0466
13	0.1397	0.1828	0.2017	0.1931	0.1397	0.1448	0.0862	0.2190	0.3241	0.4517
14	0.0379	0.0224	0.0414	0.0276	0.0500	0.0379	0.0500	0.0552	0.0414	0.0586
15	0.0293	0.0172	0.0448	0.0345	0.0500	0.0655	0.0672	0.0914	0.0534	0.1017
16	0.0259	0.0310	0.0328	0.0293	0.0259	0.0362	0.0224	0.0379	0.0500	0.0690
17	0.0517	0.1828	0.1810	0.2310	0.1897	0.2224	0.2948	0.3207	0.2828	0.1103
18	0.0276	0.0241	0.0293	0.0259	0.0155	0.0466	0.0172	0.0534	0.0224	0.0207
19	0.1517	0.2448	0.1931	0.2138	0.1897	0.2776	0.4448	0.4483	0.6759	1.0517
20	0.0362	0.0414	0.0414	0.0224	0.0345	0.0328	0.0414	0.0310	0.0397	0.0517
21	0.0345	0.0431	0.0431	0.0276	0.0276	0.0534	0.0414	0.0586	0.0414	0.0862
22	0.0241	0.0293	0.0328	0.0207	0.0207	0.0241	0.0241	0.0276	0.0241	0.0207
23	0.2103	0.1276	0.1448	0.1138	0.1707	0.2052	0.1776	0.1931	0.1759	0.2690
24	0.0293	0.0431	0.0293	0.0397	0.0345	0.0207	0.0155	0.0190	0.0310	0.0241
25	0.2241	0.1707	0.1879	0.1431	0.1552	0.1431	0.1345	0.1845	0.3724	0.3741
26	0.0328	0.0328	0.0241	0.0310	0.0293	0.0259	0.0362	0.0448	0.0431	0.0345
27	0.0155	0.0345	0.0621	0.0293	0.0207	0.0621	0.0310	0.0431	0.0466	0.1345
28	0.0397	0.0328	0.0362	0.0397	0.0224	0.0276	0.0241	0.0466	0.0345	0.0448
29	0.1414	0.0810	0.0776	0.0672	0.0517	0.0914	0.2672	0.3086	0.3707	0.4759
30	0.0397	0.0190	0.0345	0.0207	0.0241	0.0276	0.0431	0.0259	0.0293	0.0224
31	0.3759	0.2086	0.2172	0.1552	0.1741	0.1759	0.0828	0.0862	0.0621	0.1569
32	0.0328	0.0362	0.0155	0.0155	0.0414	0.0293	0.0397	0.0397	0.0517	0.0414
33	0.0328	0.0448	0.0517	0.0379	0.0414	0.0431	0.0172	0.0517	0.0259	0.0948
34	0.0603	0.0414	0.0328	0.0328	0.0293	0.0379	0.0241	0.0190	0.0379	0.0276
35	0.0948	0.1379	0.1103	0.0431	0.0914	0.1138	0.1414	0.2517	0.3724	0.2931
36	0.0310	0.0155	0.0345	0.0276	0.0190	0.0414	0.0310	0.0207	0.0207	0.0345
37	0.2276	0.1328	0.1638	0.1948	0.1586	0.0948	0.0845	0.1017	0.0431	0.2431
38	0.0672	0.0466	0.0155	0.0138	0.0138	0.0224	0.0241	0.0276	0.0155	0.0500
39	0.0190	0.0397	0.0397	0.0397	0.0345	0.0397	0.0397	0.0362	0.0379	0.0448
40	0.0345	0.0293	0.0190	0.0310	0.0190	0.0155	0.0207	0.0293	0.0241	0.0534

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Inter-harmonics (Zwischenharmonische)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
75	0.0348	0.0219	0.0191	0.0356	0.0307	0.0180	0.0210	0.0182	0.0239	0.0242
125	0.0644	0.0671	0.0763	0.0811	0.0820	0.0894	0.0877	0.0702	0.0903	0.0874
175	0.0260	0.0264	0.0255	0.0294	0.0262	0.0255	0.0250	0.0207	0.0263	0.0258
225	0.0754	0.0967	0.1094	0.1088	0.1054	0.1151	0.1146	0.1127	0.1197	0.1217
275	0.0160	0.0161	0.0158	0.0202	0.0192	0.0171	0.0185	0.0176	0.0189	0.0201
325	0.0464	0.0505	0.0526	0.0551	0.0565	0.0568	0.0584	0.0611	0.0605	0.0632
375	0.0098	0.0113	0.0119	0.0121	0.0134	0.0119	0.0130	0.0127	0.0127	0.0141
425	0.0208	0.0196	0.0157	0.0162	0.0178	0.0148	0.0164	0.0177	0.0166	0.0172
475	0.0067	0.0074	0.0077	0.0079	0.0093	0.0074	0.0083	0.0081	0.0084	0.0088
525	0.0159	0.0144	0.0118	0.0128	0.0139	0.0108	0.0125	0.0127	0.0112	0.0118
575	0.0089	0.0063	0.0060	0.0060	0.0070	0.0061	0.0071	0.0067	0.0076	0.0078
625	0.0076	0.0062	0.0066	0.0071	0.0080	0.0066	0.0078	0.0071	0.0071	0.0077
675	0.0076	0.0064	0.0059	0.0061	0.0057	0.0052	0.0062	0.0061	0.0066	0.0074
725	0.0054	0.0058	0.0051	0.0053	0.0061	0.0049	0.0066	0.0063	0.0059	0.0065
775	0.0064	0.0079	0.0070	0.0059	0.0061	0.0058	0.0062	0.0057	0.0065	0.0064
825	0.0077	0.0047	0.0045	0.0047	0.0058	0.0052	0.0063	0.0063	0.0064	0.0067
875	0.0069	0.0064	0.0062	0.0061	0.0057	0.0054	0.0058	0.0052	0.0058	0.0065
925	0.0062	0.0042	0.0048	0.0043	0.0044	0.0044	0.0049	0.0047	0.0046	0.0049
975	0.0058	0.0060	0.0054	0.0054	0.0053	0.0041	0.0045	0.0047	0.0047	0.0053
1025	0.0046	0.0041	0.0044	0.0042	0.0045	0.0038	0.0043	0.0042	0.0042	0.0046
1075	0.0044	0.0060	0.0052	0.0042	0.0043	0.0032	0.0035	0.0037	0.0034	0.0037
1125	0.0064	0.0043	0.0042	0.0040	0.0039	0.0031	0.0043	0.0042	0.0043	0.0046
1175	0.0054	0.0045	0.0043	0.0041	0.0039	0.0030	0.0032	0.0029	0.0031	0.0033
1225	0.0057	0.0040	0.0041	0.0041	0.0036	0.0029	0.0033	0.0034	0.0033	0.0035
1275	0.0051	0.0039	0.0040	0.0036	0.0038	0.0029	0.0031	0.0030	0.0030	0.0032
1325	0.0041	0.0043	0.0045	0.0038	0.0040	0.0032	0.0036	0.0033	0.0034	0.0035
1375	0.0045	0.0046	0.0039	0.0031	0.0034	0.0029	0.0030	0.0028	0.0027	0.0030
1425	0.0059	0.0043	0.0042	0.0043	0.0041	0.0029	0.0035	0.0036	0.0038	0.0040
1475	0.0049	0.0035	0.0037	0.0033	0.0030	0.0028	0.0029	0.0027	0.0028	0.0029
1525	0.0051	0.0033	0.0038	0.0036	0.0035	0.0026	0.0028	0.0029	0.0029	0.0031
1575	0.0044	0.0032	0.0031	0.0031	0.0031	0.0029	0.0029	0.0026	0.0027	0.0028
1625	0.0032	0.0037	0.0039	0.0032	0.0033	0.0025	0.0029	0.0028	0.0027	0.0029
1675	0.0042	0.0032	0.0029	0.0027	0.0028	0.0028	0.0028	0.0027	0.0025	0.0027
1725	0.0047	0.0031	0.0034	0.0033	0.0035	0.0028	0.0029	0.0030	0.0029	0.0032
1775	0.0041	0.0030	0.0029	0.0031	0.0029	0.0026	0.0026	0.0027	0.0027	0.0027
1825	0.0041	0.0029	0.0031	0.0032	0.0031	0.0028	0.0029	0.0028	0.0026	0.0029
1875	0.0035	0.0028	0.0028	0.0029	0.0030	0.0027	0.0030	0.0029	0.0028	0.0028
1925	0.0033	0.0032	0.0033	0.0032	0.0032	0.0029	0.0031	0.0030	0.0029	0.0033
1975	0.0037	0.0029	0.0028	0.0031	0.0031	0.0028	0.0031	0.0034	0.0030	0.0030

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Higher frequencies (Höhere Frequenzen)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2.1	0.0203	0.0177	0.0169	0.0215	0.0181	0.0107	0.0173	0.0286	0.0234	0.0247
2.3	0.0213	0.0205	0.0198	0.0247	0.0189	0.0242	0.0279	0.0292	0.0318	0.0466
2.5	0.0221	0.0194	0.0194	0.0245	0.0175	0.0173	0.0182	0.0191	0.0183	0.0192
2.7	0.0150	0.0117	0.0162	0.0215	0.0147	0.0125	0.0159	0.0156	0.0145	0.0121
2.9	0.0145	0.0150	0.0135	0.0135	0.0182	0.0134	0.0162	0.0154	0.0158	0.0136
3.1	0.0201	0.0190	0.0167	0.0172	0.0224	0.0169	0.0194	0.0182	0.0185	0.0168
3.3	0.0325	0.0300	0.0329	0.0291	0.0381	0.0326	0.0283	0.0268	0.0264	0.0246
3.5	0.0464	0.0450	0.0461	0.0405	0.0419	0.0466	0.0377	0.0379	0.0381	0.0367
3.7	0.0491	0.0531	0.0527	0.0530	0.0573	0.0596	0.0551	0.0558	0.0567	0.0554
3.9	0.0267	0.0298	0.0302	0.0316	0.0332	0.0345	0.0332	0.0334	0.0352	0.0339
4.1	0.0183	0.0198	0.0204	0.0200	0.0219	0.0216	0.0212	0.0216	0.0219	0.0223
4.3	0.0142	0.0150	0.0156	0.0157	0.0162	0.0158	0.0157	0.0159	0.0162	0.0165
4.5	0.0120	0.0122	0.0126	0.0128	0.0130	0.0129	0.0131	0.0132	0.0132	0.0135
4.7	0.0207	0.0216	0.0214	0.0218	0.0218	0.0215	0.0217	0.0221	0.0221	0.0219
4.9	0.0091	0.0102	0.0093	0.0095	0.0097	0.0097	0.0096	0.0097	0.0098	0.0099
5.1	0.0082	0.0085	0.0085	0.0086	0.0087	0.0087	0.0085	0.0089	0.0089	0.0088
5.3	0.0073	0.0074	0.0075	0.0074	0.0076	0.0075	0.0074	0.0077	0.0076	0.0077
5.5	0.0066	0.0066	0.0068	0.0068	0.0068	0.0069	0.0069	0.0070	0.0070	0.0069
5.7	0.0068	0.0067	0.0066	0.0068	0.0070	0.0067	0.0067	0.0068	0.0070	0.0068
5.9	0.0059	0.0061	0.0060	0.0060	0.0061	0.0059	0.0061	0.0059	0.0059	0.0060
6.1	0.0076	0.0076	0.0074	0.0074	0.0074	0.0075	0.0074	0.0075	0.0075	0.0076
6.3	0.0058	0.0062	0.0059	0.0059	0.0058	0.0058	0.0058	0.0060	0.0058	0.0059
6.5	0.0057	0.0057	0.0054	0.0052	0.0054	0.0054	0.0053	0.0055	0.0055	0.0054
6.7	0.0078	0.0086	0.0082	0.0083	0.0077	0.0084	0.0085	0.0086	0.0089	0.0092
6.9	0.0054	0.0062	0.0053	0.0051	0.0052	0.0051	0.0051	0.0052	0.0053	0.0051
7.1	0.0084	0.0088	0.0084	0.0082	0.0082	0.0081	0.0081	0.0081	0.0083	0.0083
7.3	0.0049	0.0056	0.0052	0.0050	0.0051	0.0051	0.0052	0.0051	0.0053	0.0052
7.5	0.0047	0.0048	0.0047	0.0047	0.0047	0.0047	0.0047	0.0048	0.0048	0.0049
7.7	0.0045	0.0047	0.0045	0.0045	0.0044	0.0045	0.0045	0.0046	0.0046	0.0046
7.9	0.0045	0.0046	0.0044	0.0043	0.0045	0.0044	0.0044	0.0044	0.0044	0.0045
8.1	0.0044	0.0045	0.0044	0.0044	0.0043	0.0044	0.0044	0.0044	0.0045	0.0045
8.3	0.0057	0.0057	0.0056	0.0056	0.0056	0.0055	0.0056	0.0055	0.0055	0.0055
8.5	0.0059	0.0057	0.0055	0.0055	0.0056	0.0055	0.0055	0.0056	0.0054	0.0055
8.7	0.0041	0.0042	0.0041	0.0041	0.0041	0.0041	0.0042	0.0041	0.0041	0.0041
8.9	0.0042	0.0043	0.0041	0.0041	0.0041	0.0042	0.0041	0.0041	0.0041	0.0041

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Model: SOFAR 5KTLX-G3-A, SOFAR 5.5KTLX-G3										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Ordinal number (Ordnungszahl)	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2	0.0593	0.0662	0.1145	0.0828	0.0828	0.0786	0.0814	0.0676	0.0648	0.0745
3	0.1503	0.1848	0.1517	0.1559	0.2000	0.1821	0.2483	0.2690	0.2441	0.2455
4	0.0662	0.0593	0.0607	0.0428	0.0621	0.0566	0.0483	0.0400	0.0469	0.0510
5	0.2524	0.2428	0.3448	0.3738	0.4855	0.7959	1.2566	1.8069	2.4552	2.8828
6	0.0262	0.0359	0.0290	0.0276	0.0331	0.0276	0.0290	0.0221	0.0262	0.0317
7	0.0924	0.0993	0.2014	0.2703	0.3324	0.5683	0.8386	1.0317	1.2083	0.8717
8	0.0290	0.0345	0.0566	0.0510	0.0428	0.0455	0.0386	0.0497	0.0372	0.0621
9	0.0414	0.0276	0.0841	0.0538	0.0538	0.0910	0.1145	0.0979	0.0676	0.0841
10	0.0207	0.0152	0.0262	0.0303	0.0234	0.0166	0.0372	0.0359	0.0648	0.0414
11	0.0772	0.2028	0.2262	0.2469	0.2979	0.4028	0.3876	0.4772	0.4538	0.3766
12	0.0262	0.0331	0.0207	0.0552	0.0221	0.0207	0.0262	0.0179	0.0248	0.0290
13	0.1531	0.1710	0.2234	0.1821	0.1752	0.1931	0.1103	0.2069	0.2869	0.3503
14	0.0303	0.0248	0.0428	0.0262	0.0290	0.0524	0.0276	0.0524	0.0759	0.0345
15	0.0386	0.0179	0.0386	0.0400	0.0483	0.0510	0.0772	0.0290	0.0276	0.0897
16	0.0331	0.0359	0.0331	0.0221	0.0207	0.0317	0.0290	0.0648	0.0483	0.0648
17	0.1421	0.1793	0.1738	0.2138	0.1448	0.2428	0.2566	0.3034	0.2924	0.1062
18	0.0262	0.0207	0.0345	0.0207	0.0207	0.0124	0.0317	0.0152	0.0290	0.0221
19	0.1393	0.2345	0.2083	0.1959	0.1972	0.2634	0.4152	0.5338	0.7448	0.8469
20	0.0331	0.0303	0.0331	0.0221	0.0248	0.0414	0.0469	0.0414	0.0497	0.0483
21	0.0152	0.0234	0.0359	0.0441	0.0400	0.0331	0.0510	0.0193	0.0428	0.0455
22	0.0124	0.0317	0.0428	0.0276	0.0138	0.0193	0.0276	0.0290	0.0359	0.0193
23	0.2331	0.1090	0.1117	0.0703	0.1283	0.2152	0.1793	0.2234	0.1352	0.2179
24	0.0152	0.0331	0.0248	0.0290	0.0276	0.0234	0.0234	0.0207	0.0262	0.0262
25	0.2303	0.1848	0.1959	0.1145	0.1434	0.1738	0.1379	0.2179	0.4386	0.3048
26	0.0345	0.0317	0.0414	0.0317	0.0193	0.0386	0.0386	0.0414	0.0579	0.0234
27	0.0317	0.0179	0.0317	0.0345	0.0538	0.0317	0.0800	0.0372	0.0524	0.0759
28	0.0221	0.0359	0.0469	0.0276	0.0262	0.0221	0.0234	0.0331	0.0234	0.0124
29	0.0924	0.0910	0.0952	0.0469	0.0800	0.0372	0.2607	0.3172	0.3379	0.3779
30	0.0276	0.0179	0.0193	0.0345	0.0331	0.0248	0.0290	0.0248	0.0359	0.0207
31	0.2966	0.2179	0.2124	0.1503	0.1669	0.1752	0.0621	0.0966	0.1228	0.0897
32	0.0428	0.0234	0.0359	0.0152	0.0290	0.0303	0.0317	0.0290	0.0290	0.0290
33	0.0193	0.0290	0.0290	0.0414	0.0345	0.0510	0.0483	0.0386	0.0455	0.0593
34	0.0276	0.0248	0.0400	0.0207	0.0138	0.0400	0.0359	0.0510	0.0414	0.0359
35	0.0910	0.1324	0.1421	0.1007	0.1214	0.0772	0.1283	0.2386	0.3793	0.2248
36	0.0097	0.0124	0.0207	0.0276	0.0276	0.0207	0.0262	0.0193	0.0290	0.0234
37	0.1145	0.1241	0.1628	0.1834	0.1324	0.1131	0.1021	0.1490	0.1476	0.2152
38	0.0717	0.0262	0.0276	0.0193	0.0179	0.0166	0.0248	0.0303	0.0234	0.0566
39	0.0207	0.0303	0.0221	0.0455	0.0152	0.0428	0.0441	0.0593	0.0676	0.0524
40	0.0359	0.0179	0.0303	0.0179	0.0234	0.0400	0.0455	0.0207	0.0414	0.0552

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Inter-harmonics (Zwischenharmonische)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
75	0.0206	0.0217	0.0295	0.0180	0.0169	0.0151	0.0165	0.0170	0.0194	0.0178
125	0.0645	0.0618	0.0617	0.0615	0.0638	0.0654	0.0667	0.0674	0.0706	0.0646
175	0.0191	0.0252	0.0285	0.0241	0.0235	0.0206	0.0211	0.0210	0.0228	0.0192
225	0.0347	0.0646	0.0776	0.0817	0.0852	0.0826	0.0842	0.0850	0.0868	0.0865
275	0.0130	0.0145	0.0145	0.0136	0.0119	0.0136	0.0140	0.0143	0.0158	0.0149
325	0.0158	0.0159	0.0201	0.0239	0.0263	0.0359	0.0310	0.0342	0.0305	0.0437
375	0.0231	0.0130	0.0100	0.0090	0.0083	0.0084	0.0085	0.0090	0.0098	0.0100
425	0.0125	0.0114	0.0092	0.0091	0.0069	0.0086	0.0082	0.0077	0.0081	0.0109
475	0.0076	0.0086	0.0082	0.0081	0.0069	0.0059	0.0066	0.0066	0.0081	0.0062
525	0.0068	0.0081	0.0081	0.0080	0.0066	0.0072	0.0071	0.0066	0.0068	0.0077
575	0.0059	0.0057	0.0059	0.0059	0.0062	0.0062	0.0067	0.0068	0.0080	0.0064
625	0.0045	0.0046	0.0045	0.0049	0.0048	0.0052	0.0051	0.0050	0.0055	0.0051
675	0.0046	0.0045	0.0046	0.0045	0.0038	0.0041	0.0046	0.0044	0.0049	0.0051
725	0.0035	0.0042	0.0040	0.0042	0.0036	0.0040	0.0037	0.0036	0.0039	0.0041
775	0.0048	0.0047	0.0042	0.0042	0.0035	0.0042	0.0038	0.0038	0.0036	0.0049
825	0.0035	0.0042	0.0042	0.0042	0.0036	0.0038	0.0042	0.0041	0.0044	0.0047
875	0.0037	0.0039	0.0044	0.0035	0.0029	0.0034	0.0035	0.0033	0.0035	0.0043
925	0.0032	0.0037	0.0045	0.0036	0.0036	0.0036	0.0038	0.0039	0.0043	0.0037
975	0.0036	0.0036	0.0035	0.0032	0.0026	0.0027	0.0028	0.0027	0.0029	0.0035
1025	0.0028	0.0031	0.0034	0.0035	0.0031	0.0033	0.0031	0.0032	0.0035	0.0030
1075	0.0036	0.0037	0.0035	0.0032	0.0025	0.0024	0.0025	0.0025	0.0026	0.0026
1125	0.0027	0.0029	0.0030	0.0027	0.0024	0.0029	0.0030	0.0028	0.0031	0.0033
1175	0.0027	0.0032	0.0036	0.0029	0.0023	0.0023	0.0023	0.0022	0.0025	0.0026
1225	0.0028	0.0028	0.0035	0.0028	0.0021	0.0022	0.0025	0.0025	0.0028	0.0026
1275	0.0025	0.0028	0.0030	0.0026	0.0022	0.0022	0.0021	0.0021	0.0024	0.0025
1325	0.0027	0.0031	0.0032	0.0028	0.0022	0.0024	0.0022	0.0022	0.0023	0.0025
1375	0.0032	0.0028	0.0026	0.0022	0.0022	0.0021	0.0020	0.0021	0.0022	0.0022
1425	0.0024	0.0026	0.0031	0.0028	0.0023	0.0024	0.0025	0.0025	0.0027	0.0030
1475	0.0026	0.0025	0.0029	0.0021	0.0022	0.0021	0.0020	0.0020	0.0021	0.0022
1525	0.0028	0.0025	0.0029	0.0025	0.0020	0.0019	0.0020	0.0022	0.0023	0.0022
1575	0.0023	0.0023	0.0024	0.0021	0.0020	0.0020	0.0020	0.0019	0.0021	0.0021
1625	0.0027	0.0026	0.0027	0.0023	0.0019	0.0019	0.0020	0.0019	0.0020	0.0020
1675	0.0025	0.0023	0.0022	0.0020	0.0019	0.0020	0.0019	0.0019	0.0020	0.0020
1725	0.0023	0.0022	0.0026	0.0022	0.0022	0.0019	0.0020	0.0020	0.0023	0.0024
1775	0.0022	0.0020	0.0026	0.0020	0.0020	0.0019	0.0019	0.0018	0.0021	0.0020
1825	0.0025	0.0023	0.0028	0.0022	0.0021	0.0020	0.0020	0.0020	0.0021	0.0022
1875	0.0021	0.0018	0.0022	0.0019	0.0020	0.0020	0.0020	0.0019	0.0022	0.0020
1925	0.0023	0.0024	0.0026	0.0023	0.0020	0.0021	0.0022	0.0021	0.0023	0.0027
1975	0.0021	0.0022	0.0023	0.0023	0.0021	0.0021	0.0022	0.0022	0.0022	0.0020

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Higher frequencies (Höhere Frequenzen)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2.1	0.0095	0.0103	0.0073	0.0170	0.0086	0.0110	0.0201	0.0160	0.0195	0.0363
2.3	0.0141	0.0147	0.0147	0.0164	0.0162	0.0191	0.0205	0.0230	0.0352	0.0484
2.5	0.0136	0.0141	0.0125	0.0160	0.0121	0.0126	0.0137	0.0128	0.0140	0.0161
2.7	0.0101	0.0144	0.0086	0.0161	0.0079	0.0112	0.0110	0.0100	0.0086	0.0109
2.9	0.0104	0.0100	0.0132	0.0119	0.0100	0.0113	0.0111	0.0110	0.0094	0.0088
3.1	0.0148	0.0138	0.0154	0.0131	0.0133	0.0137	0.0129	0.0131	0.0116	0.0114
3.3	0.0226	0.0238	0.0220	0.0208	0.0258	0.0202	0.0191	0.0185	0.0176	0.0178
3.5	0.0317	0.0288	0.0295	0.0280	0.0342	0.0278	0.0270	0.0275	0.0267	0.0260
3.7	0.0350	0.0357	0.0381	0.0375	0.0423	0.0391	0.0397	0.0401	0.0400	0.0397
3.9	0.0200	0.0220	0.0223	0.0243	0.0239	0.0237	0.0239	0.0244	0.0247	0.0247
4.1	0.0134	0.0139	0.0145	0.0148	0.0148	0.0149	0.0151	0.0155	0.0155	0.0158
4.3	0.0100	0.0107	0.0107	0.0109	0.0109	0.0111	0.0114	0.0114	0.0117	0.0116
4.5	0.0085	0.0088	0.0089	0.0088	0.0091	0.0093	0.0093	0.0094	0.0095	0.0097
4.7	0.0149	0.0152	0.0155	0.0155	0.0153	0.0155	0.0155	0.0155	0.0156	0.0157
4.9	0.0065	0.0070	0.0065	0.0067	0.0069	0.0068	0.0069	0.0069	0.0070	0.0069
5.1	0.0059	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0063	0.0063	0.0062
5.3	0.0052	0.0052	0.0053	0.0052	0.0052	0.0054	0.0053	0.0053	0.0055	0.0056
5.5	0.0047	0.0048	0.0048	0.0048	0.0047	0.0049	0.0048	0.0049	0.0050	0.0050
5.7	0.0047	0.0048	0.0047	0.0048	0.0048	0.0048	0.0047	0.0049	0.0048	0.0050
5.9	0.0041	0.0042	0.0041	0.0042	0.0042	0.0042	0.0042	0.0042	0.0044	0.0043
6.1	0.0053	0.0053	0.0053	0.0052	0.0052	0.0052	0.0053	0.0053	0.0053	0.0053
6.3	0.0042	0.0043	0.0042	0.0042	0.0041	0.0041	0.0043	0.0043	0.0042	0.0042
6.5	0.0040	0.0039	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
6.7	0.0057	0.0062	0.0056	0.0057	0.0058	0.0060	0.0062	0.0063	0.0065	0.0066
6.9	0.0039	0.0043	0.0036	0.0036	0.0036	0.0036	0.0036	0.0037	0.0036	0.0036
7.1	0.0059	0.0061	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058
7.3	0.0035	0.0039	0.0035	0.0035	0.0036	0.0035	0.0036	0.0037	0.0037	0.0037
7.5	0.0033	0.0034	0.0033	0.0033	0.0033	0.0034	0.0034	0.0034	0.0034	0.0034
7.7	0.0031	0.0031	0.0031	0.0032	0.0030	0.0031	0.0031	0.0031	0.0032	0.0032
7.9	0.0032	0.0032	0.0031	0.0030	0.0030	0.0032	0.0032	0.0031	0.0031	0.0031
8.1	0.0032	0.0032	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0032
8.3	0.0040	0.0040	0.0039	0.0040	0.0040	0.0039	0.0039	0.0038	0.0039	0.0039
8.5	0.0041	0.0040	0.0039	0.0039	0.0039	0.0039	0.0039	0.0038	0.0040	0.0039
8.7	0.0030	0.0030	0.0029	0.0029	0.0028	0.0029	0.0029	0.0029	0.0029	0.0029
8.9	0.0029	0.0030	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Model: SOFAR 6.6KTLX-G3										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Ordinal number (Ordnungszahl)	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2	0.0633	0.0518	0.0771	0.1254	0.1392	0.1105	0.0771	0.0990	0.0898	0.1185
3	0.1600	0.1669	0.1542	0.1680	0.2451	0.2221	0.2555	0.2578	0.2612	0.2762
4	0.0610	0.0437	0.0529	0.0610	0.0633	0.0598	0.0575	0.0345	0.0541	0.0679
5	0.1933	0.2244	0.3395	0.4143	0.5259	0.8573	1.2888	2.1059	2.5316	3.5788
6	0.0391	0.0242	0.0311	0.0184	0.0276	0.0391	0.0345	0.0253	0.0541	0.0380
7	0.0817	0.1162	0.2290	0.2463	0.3717	0.5627	0.7814	0.9252	1.1507	1.1174
8	0.0403	0.0196	0.0564	0.0771	0.0633	0.0460	0.0414	0.0460	0.0437	0.0621
9	0.0426	0.0322	0.0725	0.0690	0.0978	0.0990	0.0955	0.0656	0.0783	0.1220
10	0.0230	0.0265	0.0345	0.0575	0.0380	0.0253	0.0334	0.0403	0.0403	0.0587
11	0.0794	0.1784	0.2152	0.2348	0.3003	0.3993	0.4327	0.4937	0.4419	0.5075
12	0.0518	0.0265	0.0334	0.0265	0.0184	0.0345	0.0552	0.0196	0.0426	0.0460
13	0.1300	0.1853	0.2325	0.1749	0.2117	0.1623	0.1738	0.1945	0.3222	0.4200
14	0.0311	0.0230	0.0311	0.0495	0.0483	0.0391	0.0483	0.0345	0.0575	0.0759
15	0.0391	0.0345	0.0541	0.0495	0.0541	0.0460	0.0667	0.0529	0.1070	0.1024
16	0.0403	0.0380	0.0322	0.0230	0.0219	0.0276	0.0242	0.0587	0.0794	0.0713
17	0.1312	0.1611	0.1795	0.2382	0.1749	0.2394	0.2658	0.2693	0.2359	0.1922
18	0.0253	0.0184	0.0196	0.0265	0.0150	0.0460	0.0449	0.0288	0.0391	0.0334
19	0.1093	0.2428	0.2060	0.2071	0.1922	0.3015	0.3982	0.6904	0.7422	1.0288
20	0.0207	0.0230	0.0219	0.0380	0.0138	0.0242	0.0173	0.0334	0.0472	0.0472
21	0.0322	0.0368	0.0242	0.0437	0.0414	0.0345	0.0552	0.0575	0.0863	0.0541
22	0.0345	0.0403	0.0437	0.0276	0.0161	0.0403	0.0334	0.0230	0.0161	0.0253
23	0.2232	0.1093	0.1289	0.0794	0.1611	0.2186	0.2681	0.1864	0.1795	0.2911
24	0.0173	0.0334	0.0173	0.0276	0.0299	0.0483	0.0276	0.0253	0.0391	0.0230
25	0.2221	0.1807	0.1933	0.1139	0.1807	0.2025	0.1404	0.3222	0.3901	0.3682
26	0.0403	0.0253	0.0345	0.0299	0.0230	0.0276	0.0288	0.0380	0.0391	0.0380
27	0.0334	0.0184	0.0104	0.0483	0.0368	0.0196	0.0886	0.0242	0.0852	0.0299
28	0.0403	0.0380	0.0437	0.0437	0.0207	0.0184	0.0265	0.0403	0.0276	0.0529
29	0.1162	0.0771	0.0909	0.0414	0.0449	0.0518	0.2704	0.3936	0.3625	0.4937
30	0.0403	0.0161	0.0207	0.0242	0.0368	0.0460	0.0288	0.0311	0.0483	0.0322
31	0.3498	0.2060	0.1876	0.1427	0.1738	0.2083	0.1277	0.0748	0.0806	0.1254
32	0.0472	0.0253	0.0311	0.0299	0.0138	0.0196	0.0230	0.0196	0.0426	0.0437
33	0.0219	0.0196	0.0299	0.0242	0.0357	0.0311	0.0875	0.0437	0.0748	0.0806
34	0.0299	0.0276	0.0403	0.0345	0.0161	0.0173	0.0587	0.0426	0.0276	0.0483
35	0.1174	0.1312	0.1369	0.0886	0.1070	0.0932	0.1243	0.3268	0.3671	0.3038
36	0.0426	0.0150	0.0288	0.0242	0.0380	0.0334	0.0311	0.0311	0.0460	0.0230
37	0.1761	0.1185	0.1554	0.1761	0.1864	0.0932	0.1128	0.0840	0.0806	0.2612
38	0.0299	0.0357	0.0380	0.0253	0.0242	0.0288	0.0414	0.0322	0.0472	0.0207
39	0.0242	0.0380	0.0150	0.0184	0.0506	0.0426	0.0495	0.0391	0.0921	0.0598
40	0.0288	0.0219	0.0253	0.0150	0.0161	0.0161	0.0322	0.0150	0.0322	0.0529

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Inter-harmonics (Zwischenharmonische)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
75	0.0138	0.0102	0.0109	0.0069	0.0103	0.0089	0.0091	0.0108	0.0067	0.0104
125	0.0346	0.0253	0.0347	0.0333	0.0390	0.0327	0.0397	0.0281	0.0166	0.0222
175	0.0123	0.0103	0.0126	0.0113	0.0107	0.0094	0.0103	0.0108	0.0099	0.0115
225	0.0261	0.0371	0.0491	0.0441	0.0507	0.0483	0.0541	0.0516	0.0417	0.0537
275	0.0054	0.0062	0.0074	0.0074	0.0078	0.0077	0.0083	0.0092	0.0079	0.0086
325	0.0148	0.0211	0.0231	0.0246	0.0250	0.0265	0.0276	0.0300	0.0304	0.0333
375	0.0038	0.0045	0.0052	0.0055	0.0053	0.0063	0.0056	0.0066	0.0051	0.0061
425	0.0059	0.0090	0.0062	0.0073	0.0064	0.0079	0.0070	0.0084	0.0077	0.0086
475	0.0030	0.0038	0.0034	0.0036	0.0036	0.0040	0.0037	0.0041	0.0034	0.0043
525	0.0038	0.0059	0.0051	0.0058	0.0048	0.0061	0.0048	0.0058	0.0051	0.0052
575	0.0027	0.0031	0.0029	0.0026	0.0029	0.0032	0.0034	0.0035	0.0027	0.0030
625	0.0025	0.0026	0.0027	0.0033	0.0030	0.0034	0.0034	0.0036	0.0027	0.0029
675	0.0026	0.0031	0.0028	0.0025	0.0026	0.0033	0.0030	0.0034	0.0026	0.0029
725	0.0020	0.0024	0.0024	0.0028	0.0025	0.0032	0.0026	0.0033	0.0032	0.0031
775	0.0023	0.0033	0.0031	0.0024	0.0025	0.0027	0.0028	0.0026	0.0021	0.0024
825	0.0019	0.0025	0.0020	0.0022	0.0024	0.0033	0.0027	0.0032	0.0030	0.0028
875	0.0018	0.0026	0.0027	0.0024	0.0023	0.0024	0.0026	0.0025	0.0017	0.0020
925	0.0018	0.0020	0.0021	0.0018	0.0020	0.0023	0.0021	0.0022	0.0020	0.0020
975	0.0015	0.0021	0.0025	0.0023	0.0018	0.0022	0.0020	0.0024	0.0019	0.0022
1025	0.0016	0.0019	0.0020	0.0018	0.0016	0.0020	0.0017	0.0022	0.0018	0.0019
1075	0.0013	0.0024	0.0024	0.0019	0.0014	0.0017	0.0016	0.0017	0.0015	0.0017
1125	0.0015	0.0019	0.0021	0.0017	0.0015	0.0022	0.0019	0.0022	0.0017	0.0018
1175	0.0013	0.0019	0.0022	0.0016	0.0014	0.0015	0.0014	0.0015	0.0013	0.0014
1225	0.0013	0.0016	0.0020	0.0016	0.0013	0.0015	0.0015	0.0016	0.0014	0.0015
1275	0.0013	0.0017	0.0021	0.0017	0.0014	0.0015	0.0013	0.0016	0.0014	0.0016
1325	0.0014	0.0017	0.0020	0.0016	0.0014	0.0016	0.0015	0.0017	0.0015	0.0016
1375	0.0012	0.0018	0.0017	0.0013	0.0013	0.0014	0.0012	0.0014	0.0013	0.0015
1425	0.0014	0.0017	0.0020	0.0018	0.0014	0.0017	0.0017	0.0018	0.0016	0.0016
1475	0.0013	0.0015	0.0018	0.0013	0.0013	0.0013	0.0012	0.0012	0.0011	0.0013
1525	0.0012	0.0017	0.0018	0.0015	0.0011	0.0012	0.0013	0.0014	0.0012	0.0013
1575	0.0012	0.0014	0.0015	0.0012	0.0013	0.0014	0.0012	0.0014	0.0012	0.0014
1625	0.0011	0.0016	0.0018	0.0014	0.0012	0.0013	0.0012	0.0014	0.0012	0.0013
1675	0.0011	0.0013	0.0013	0.0011	0.0012	0.0013	0.0011	0.0013	0.0012	0.0013
1725	0.0011	0.0014	0.0016	0.0016	0.0012	0.0013	0.0013	0.0015	0.0013	0.0014
1775	0.0011	0.0012	0.0014	0.0012	0.0012	0.0012	0.0012	0.0012	0.0011	0.0012
1825	0.0011	0.0013	0.0014	0.0013	0.0012	0.0013	0.0012	0.0014	0.0013	0.0012
1875	0.0012	0.0013	0.0014	0.0012	0.0013	0.0014	0.0012	0.0013	0.0012	0.0013
1925	0.0012	0.0014	0.0014	0.0014	0.0013	0.0015	0.0013	0.0017	0.0015	0.0015
1975	0.0013	0.0014	0.0014	0.0013	0.0013	0.0014	0.0013	0.0014	0.0013	0.0014

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Higher frequencies (Höhere Frequenzen)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2.1	0.0040	0.0070	0.0108	0.0049	0.0117	0.0103	0.0163	0.0242	0.0215	0.0174
2.3	0.0091	0.0087	0.0104	0.0112	0.0137	0.0146	0.0253	0.0311	0.0264	0.0186
2.5	0.0081	0.0086	0.0102	0.0079	0.0084	0.0081	0.0093	0.0099	0.0088	0.0106
2.7	0.0055	0.0071	0.0101	0.0056	0.0070	0.0063	0.0056	0.0077	0.0076	0.0092
2.9	0.0062	0.0064	0.0073	0.0059	0.0070	0.0071	0.0055	0.0061	0.0071	0.0081
3.1	0.0080	0.0074	0.0081	0.0077	0.0085	0.0081	0.0071	0.0081	0.0088	0.0087
3.3	0.0151	0.0146	0.0129	0.0144	0.0126	0.0115	0.0107	0.0121	0.0131	0.0126
3.5	0.0201	0.0214	0.0176	0.0211	0.0169	0.0170	0.0168	0.0164	0.0168	0.0166
3.7	0.0230	0.0248	0.0237	0.0267	0.0243	0.0251	0.0256	0.0250	0.0260	0.0273
3.9	0.0126	0.0135	0.0149	0.0149	0.0147	0.0153	0.0155	0.0157	0.0167	0.0172
4.1	0.0087	0.0090	0.0093	0.0093	0.0095	0.0097	0.0099	0.0100	0.0104	0.0105
4.3	0.0066	0.0069	0.0069	0.0069	0.0072	0.0073	0.0074	0.0074	0.0075	0.0077
4.5	0.0055	0.0057	0.0056	0.0057	0.0059	0.0059	0.0059	0.0060	0.0062	0.0063
4.7	0.0096	0.0096	0.0097	0.0098	0.0099	0.0099	0.0097	0.0098	0.0100	0.0100
4.9	0.0044	0.0042	0.0042	0.0042	0.0042	0.0044	0.0043	0.0044	0.0044	0.0045
5.1	0.0038	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0040	0.0041	0.0040
5.3	0.0033	0.0033	0.0034	0.0033	0.0034	0.0034	0.0035	0.0034	0.0035	0.0035
5.5	0.0031	0.0030	0.0030	0.0031	0.0031	0.0031	0.0031	0.0032	0.0032	0.0031
5.7	0.0030	0.0030	0.0029	0.0030	0.0030	0.0030	0.0030	0.0031	0.0031	0.0032
5.9	0.0027	0.0027	0.0026	0.0027	0.0026	0.0027	0.0027	0.0027	0.0028	0.0028
6.1	0.0034	0.0033	0.0033	0.0033	0.0034	0.0034	0.0033	0.0034	0.0033	0.0035
6.3	0.0028	0.0026	0.0025	0.0026	0.0027	0.0027	0.0027	0.0028	0.0027	0.0027
6.5	0.0026	0.0024	0.0024	0.0024	0.0024	0.0024	0.0025	0.0024	0.0024	0.0025
6.7	0.0039	0.0037	0.0035	0.0037	0.0038	0.0040	0.0041	0.0044	0.0044	0.0046
6.9	0.0027	0.0024	0.0023	0.0023	0.0023	0.0023	0.0023	0.0024	0.0023	0.0023
7.1	0.0039	0.0037	0.0036	0.0036	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037
7.3	0.0024	0.0022	0.0022	0.0023	0.0022	0.0023	0.0023	0.0024	0.0024	0.0024
7.5	0.0021	0.0021	0.0021	0.0021	0.0021	0.0022	0.0021	0.0021	0.0022	0.0022
7.7	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0021
7.9	0.0020	0.0020	0.0020	0.0019	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
8.1	0.0020	0.0019	0.0019	0.0019	0.0019	0.0019	0.0020	0.0020	0.0020	0.0020
8.3	0.0026	0.0025	0.0024	0.0024	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
8.5	0.0027	0.0025	0.0024	0.0025	0.0025	0.0025	0.0024	0.0025	0.0025	0.0025
8.7	0.0020	0.0018	0.0018	0.0018	0.0018	0.0019	0.0019	0.0019	0.0019	0.0019
8.9	0.0019	0.0018	0.0018	0.0018	0.0019	0.0019	0.0018	0.0018	0.0019	0.0019

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Model: SOFAR 8.8KTLX-G3										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Ordinal number (Ordnungszahl)	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2	0.0751	0.0958	0.0846	0.1225	0.0828	0.0897	0.0871	0.0889	0.0794	0.0940
3	0.1303	0.1717	0.1372	0.1838	0.1984	0.1984	0.2114	0.2623	0.2770	0.3072
4	0.0604	0.0518	0.0483	0.0440	0.0492	0.0483	0.0561	0.0406	0.0440	0.0768
5	0.2355	0.2606	0.3607	0.3788	0.5263	0.9318	1.1993	1.9845	2.3986	3.5893
6	0.0285	0.0293	0.0336	0.0233	0.0319	0.0380	0.0354	0.0216	0.0414	0.0267
7	0.0846	0.1355	0.2364	0.2632	0.3218	0.5393	0.8421	0.9922	1.2166	1.0871
8	0.0388	0.0397	0.0475	0.0768	0.0716	0.0440	0.0466	0.0423	0.0345	0.0587
9	0.0328	0.0380	0.0578	0.0664	0.0682	0.0759	0.0932	0.0638	0.1156	0.1087
10	0.0198	0.0319	0.0285	0.0638	0.0414	0.0250	0.0233	0.0345	0.0285	0.0440
11	0.1001	0.1726	0.2157	0.2053	0.2856	0.4072	0.4202	0.4651	0.4452	0.4625
12	0.0371	0.0147	0.0285	0.0285	0.0302	0.0380	0.0216	0.0328	0.0406	0.0354
13	0.1363	0.1821	0.2226	0.1639	0.1294	0.1009	0.1812	0.1864	0.2959	0.4642
14	0.0319	0.0336	0.0414	0.0837	0.0535	0.0475	0.0285	0.0406	0.0535	0.0466
15	0.0406	0.0129	0.0535	0.0345	0.0345	0.0423	0.0630	0.0388	0.0751	0.1104
16	0.0362	0.0509	0.0328	0.0302	0.0423	0.0207	0.0328	0.0475	0.0621	0.0613
17	0.1475	0.1510	0.1691	0.1941	0.1484	0.1950	0.2735	0.2701	0.2925	0.1260
18	0.0224	0.0233	0.0086	0.0336	0.0155	0.0285	0.0336	0.0173	0.0190	0.0423
19	0.1467	0.2269	0.2062	0.1976	0.1441	0.3132	0.3399	0.6471	0.6730	1.0613
20	0.0250	0.0362	0.0181	0.0406	0.0267	0.0397	0.0414	0.0406	0.0449	0.0664
21	0.0267	0.0371	0.0345	0.0371	0.0371	0.0406	0.0406	0.0414	0.0164	0.0578
22	0.0285	0.0250	0.0302	0.0362	0.0207	0.0224	0.0112	0.0216	0.0259	0.0276
23	0.2166	0.1087	0.1268	0.0708	0.1622	0.1613	0.2088	0.1760	0.1821	0.2709
24	0.0293	0.0155	0.0345	0.0285	0.0259	0.0233	0.0198	0.0371	0.0198	0.0319
25	0.2148	0.1648	0.2036	0.1346	0.1217	0.1303	0.0984	0.2977	0.3210	0.3805
26	0.0406	0.0509	0.0181	0.0388	0.0354	0.0311	0.0285	0.0656	0.0431	0.0224
27	0.0319	0.0354	0.0328	0.0509	0.0414	0.0561	0.0630	0.0233	0.0406	0.1156
28	0.0414	0.0285	0.0380	0.0371	0.0293	0.0207	0.0207	0.0431	0.0561	0.0181
29	0.0889	0.0966	0.0725	0.0466	0.0362	0.1191	0.2459	0.3296	0.3399	0.4849
30	0.0345	0.0155	0.0414	0.0440	0.0285	0.0267	0.0198	0.0267	0.0354	0.0302
31	0.3080	0.1708	0.1872	0.1199	0.1381	0.1622	0.1044	0.0725	0.0708	0.0975
32	0.0552	0.0414	0.0362	0.0397	0.0466	0.0336	0.0423	0.0414	0.0319	0.0328
33	0.0267	0.0526	0.0224	0.0371	0.0198	0.0267	0.0216	0.0328	0.0621	0.0742
34	0.0362	0.0285	0.0397	0.0293	0.0173	0.0319	0.0328	0.0354	0.0276	0.0319
35	0.1191	0.1044	0.1260	0.1027	0.0837	0.1018	0.1303	0.3020	0.3555	0.3054
36	0.0173	0.0345	0.0362	0.0250	0.0336	0.0354	0.0164	0.0190	0.0242	0.0362
37	0.1406	0.1182	0.1579	0.1251	0.1475	0.0828	0.1303	0.0569	0.0656	0.2330
38	0.0699	0.0431	0.0216	0.0267	0.0397	0.0336	0.0216	0.0466	0.0328	0.0673
39	0.0207	0.0475	0.0164	0.0302	0.0267	0.0276	0.0362	0.0354	0.0457	0.0483
40	0.0362	0.0267	0.0328	0.0190	0.0173	0.0285	0.0129	0.0216	0.0293	0.0535

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Inter-harmonics (Zwischenharmonische)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
75	0.0090	0.0104	0.0069	0.0054	0.0054	0.0051	0.0067	0.0053	0.0055	0.0075
125	0.0144	0.0227	0.0227	0.0234	0.0241	0.0228	0.0234	0.0226	0.0223	0.0227
175	0.0075	0.0108	0.0086	0.0070	0.0070	0.0060	0.0068	0.0065	0.0065	0.0069
225	0.0112	0.0257	0.0297	0.0296	0.0301	0.0311	0.0318	0.0316	0.0321	0.0329
275	0.0048	0.0061	0.0049	0.0046	0.0050	0.0046	0.0050	0.0050	0.0051	0.0049
325	0.0058	0.0055	0.0072	0.0121	0.0135	0.0157	0.0163	0.0168	0.0173	0.0174
375	0.0043	0.0062	0.0033	0.0030	0.0033	0.0032	0.0036	0.0035	0.0037	0.0037
425	0.0027	0.0031	0.0025	0.0030	0.0030	0.0034	0.0036	0.0036	0.0039	0.0041
475	0.0023	0.0030	0.0030	0.0022	0.0023	0.0021	0.0022	0.0023	0.0026	0.0028
525	0.0026	0.0024	0.0022	0.0025	0.0026	0.0025	0.0025	0.0025	0.0026	0.0026
575	0.0024	0.0019	0.0022	0.0021	0.0025	0.0021	0.0023	0.0023	0.0022	0.0024
625	0.0019	0.0018	0.0017	0.0018	0.0019	0.0017	0.0018	0.0018	0.0018	0.0017
675	0.0021	0.0017	0.0014	0.0016	0.0018	0.0016	0.0018	0.0018	0.0018	0.0018
725	0.0014	0.0014	0.0013	0.0013	0.0014	0.0013	0.0014	0.0015	0.0015	0.0015
775	0.0014	0.0015	0.0012	0.0013	0.0015	0.0016	0.0017	0.0017	0.0017	0.0018
825	0.0015	0.0015	0.0014	0.0014	0.0016	0.0015	0.0016	0.0016	0.0016	0.0016
875	0.0016	0.0014	0.0011	0.0012	0.0013	0.0014	0.0014	0.0013	0.0014	0.0014
925	0.0015	0.0012	0.0014	0.0013	0.0014	0.0012	0.0012	0.0013	0.0014	0.0014
975	0.0015	0.0012	0.0009	0.0010	0.0010	0.0011	0.0011	0.0012	0.0011	0.0012
1025	0.0012	0.0010	0.0012	0.0010	0.0012	0.0011	0.0011	0.0012	0.0012	0.0013
1075	0.0011	0.0012	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
1125	0.0013	0.0009	0.0009	0.0011	0.0011	0.0011	0.0012	0.0011	0.0012	0.0011
1175	0.0014	0.0011	0.0009	0.0008	0.0009	0.0008	0.0009	0.0009	0.0009	0.0009
1225	0.0014	0.0011	0.0008	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0010
1275	0.0013	0.0008	0.0008	0.0007	0.0008	0.0008	0.0009	0.0009	0.0009	0.0010
1325	0.0011	0.0010	0.0008	0.0009	0.0008	0.0008	0.0009	0.0009	0.0009	0.0010
1375	0.0009	0.0008	0.0008	0.0007	0.0007	0.0008	0.0008	0.0008	0.0008	0.0008
1425	0.0012	0.0010	0.0008	0.0009	0.0009	0.0009	0.0010	0.0010	0.0011	0.0010
1475	0.0011	0.0009	0.0007	0.0007	0.0008	0.0008	0.0008	0.0009	0.0008	0.0008
1525	0.0012	0.0009	0.0007	0.0007	0.0008	0.0009	0.0009	0.0008	0.0008	0.0008
1575	0.0011	0.0008	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008	0.0008	0.0008
1625	0.0008	0.0009	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008
1675	0.0007	0.0007	0.0007	0.0006	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008
1725	0.0008	0.0008	0.0008	0.0007	0.0008	0.0008	0.0008	0.0008	0.0009	0.0009
1775	0.0009	0.0008	0.0007	0.0007	0.0007	0.0007	0.0008	0.0007	0.0008	0.0008
1825	0.0009	0.0008	0.0008	0.0007	0.0007	0.0008	0.0008	0.0008	0.0008	0.0008
1875	0.0009	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008	0.0008
1925	0.0008	0.0008	0.0007	0.0008	0.0008	0.0009	0.0008	0.0008	0.0007	0.0008
1975	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0008	0.0008	0.0008

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Higher frequencies (Höhere Frequenzen)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2.1	0.0043	0.0056	0.0027	0.0075	0.0067	0.0137	0.0112	0.0081	0.0056	0.0061
2.3	0.0052	0.0061	0.0063	0.0076	0.0120	0.0175	0.0131	0.0077	0.0049	0.0058
2.5	0.0047	0.0062	0.0043	0.0047	0.0048	0.0054	0.0054	0.0075	0.0151	0.0185
2.7	0.0031	0.0058	0.0031	0.0040	0.0030	0.0043	0.0044	0.0073	0.0152	0.0190
2.9	0.0036	0.0034	0.0033	0.0039	0.0033	0.0036	0.0042	0.0049	0.0059	0.0059
3.1	0.0046	0.0040	0.0043	0.0047	0.0041	0.0046	0.0049	0.0046	0.0040	0.0044
3.3	0.0076	0.0067	0.0081	0.0069	0.0064	0.0070	0.0074	0.0069	0.0067	0.0076
3.5	0.0111	0.0100	0.0116	0.0099	0.0099	0.0094	0.0089	0.0098	0.0101	0.0114
3.7	0.0128	0.0138	0.0143	0.0149	0.0147	0.0142	0.0142	0.0162	0.0160	0.0174
3.9	0.0076	0.0082	0.0087	0.0087	0.0089	0.0089	0.0096	0.0106	0.0100	0.0109
4.1	0.0049	0.0051	0.0052	0.0054	0.0055	0.0057	0.0060	0.0061	0.0061	0.0064
4.3	0.0037	0.0039	0.0039	0.0040	0.0041	0.0041	0.0043	0.0044	0.0045	0.0044
4.5	0.0031	0.0033	0.0032	0.0033	0.0033	0.0034	0.0036	0.0037	0.0036	0.0037
4.7	0.0056	0.0054	0.0055	0.0056	0.0056	0.0056	0.0058	0.0057	0.0056	0.0056
4.9	0.0025	0.0023	0.0024	0.0025	0.0024	0.0025	0.0026	0.0025	0.0026	0.0027
5.1	0.0022	0.0021	0.0022	0.0022	0.0022	0.0023	0.0023	0.0023	0.0024	0.0024
5.3	0.0019	0.0018	0.0019	0.0019	0.0019	0.0019	0.0020	0.0020	0.0021	0.0021
5.5	0.0017	0.0017	0.0017	0.0017	0.0017	0.0018	0.0018	0.0019	0.0019	0.0019
5.7	0.0017	0.0017	0.0017	0.0017	0.0017	0.0018	0.0018	0.0018	0.0018	0.0019
5.9	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0016	0.0016	0.0016	0.0016
6.1	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0020	0.0019	0.0019
6.3	0.0016	0.0015	0.0015	0.0014	0.0015	0.0015	0.0016	0.0016	0.0016	0.0017
6.5	0.0014	0.0013	0.0013	0.0014	0.0013	0.0014	0.0014	0.0014	0.0014	0.0014
6.7	0.0021	0.0021	0.0022	0.0022	0.0023	0.0023	0.0025	0.0027	0.0029	0.0032
6.9	0.0015	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0014	0.0014
7.1	0.0022	0.0020	0.0021	0.0020	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
7.3	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0014	0.0014	0.0014
7.5	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013
7.7	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012	0.0011	0.0012
7.9	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012
8.1	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
8.3	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0015	0.0014	0.0014	0.0014
8.5	0.0015	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
8.7	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010	0.0011	0.0011	0.0011	0.0011
8.9	0.0011	0.0010	0.0010	0.0010	0.0011	0.0010	0.0011	0.0011	0.0011	0.0011

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Model: SOFAR 10KTLX-G3-A, SOFAR 11KTLX-G3, SOFAR 11KTLX-G3-A										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Ordinal number (Ordnungszahl)	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2	0.0704	0.0780	0.0918	0.0911	0.0897	0.0876	0.0752	0.0614	0.0842	0.2588
3	0.1449	0.1884	0.1573	0.1539	0.1912	0.1884	0.2491	0.2429	0.2526	0.0531
4	0.0587	0.0594	0.0573	0.0656	0.0656	0.0656	0.0573	0.0476	0.0614	3.5694
5	0.2360	0.2622	0.3244	0.3775	0.4631	0.8282	1.3458	1.8427	2.3671	0.0352
6	0.0352	0.0283	0.0262	0.0248	0.0290	0.0331	0.0262	0.0248	0.0359	1.0959
7	0.0973	0.1339	0.2050	0.2464	0.3182	0.5556	0.8144	1.0628	1.2491	0.0649
8	0.0359	0.0642	0.0511	0.0656	0.0462	0.0380	0.0255	0.0490	0.0725	0.0897
9	0.0400	0.0538	0.0752	0.0663	0.0600	0.0787	0.0773	0.0918	0.0794	0.0497
10	0.0242	0.0179	0.0248	0.0518	0.0324	0.0214	0.0255	0.0262	0.0393	0.4914
11	0.0904	0.1974	0.2063	0.2636	0.3002	0.3616	0.4099	0.4707	0.4817	0.0311
12	0.0317	0.0186	0.0338	0.0104	0.0311	0.0469	0.0255	0.0124	0.0635	0.4548
13	0.1201	0.1725	0.2091	0.1560	0.1836	0.1311	0.1304	0.1801	0.2685	0.0649
14	0.0207	0.0366	0.0476	0.0338	0.0393	0.0407	0.0614	0.0531	0.0504	0.0759
15	0.0393	0.0276	0.0587	0.0531	0.0573	0.0524	0.0621	0.0331	0.0876	0.0697
16	0.0359	0.0207	0.0290	0.0311	0.0255	0.0276	0.0283	0.0587	0.0849	0.1435
17	0.1463	0.1760	0.1560	0.2098	0.2160	0.1884	0.2409	0.3140	0.3368	0.0290
18	0.0283	0.0200	0.0214	0.0235	0.0159	0.0373	0.0228	0.0338	0.0359	1.0600
19	0.1159	0.2195	0.1919	0.1725	0.2319	0.2333	0.4582	0.5680	0.6901	0.0483
20	0.0255	0.0290	0.0242	0.0317	0.0248	0.0386	0.0511	0.0262	0.0483	0.0483
21	0.0380	0.0331	0.0290	0.0442	0.0393	0.0290	0.0428	0.0400	0.0407	0.0297
22	0.0311	0.0366	0.0276	0.0345	0.0262	0.0179	0.0297	0.0200	0.0359	0.2740
23	0.2250	0.1153	0.0856	0.0738	0.1822	0.1781	0.1615	0.1739	0.1573	0.0380
24	0.0173	0.0214	0.0235	0.0338	0.0242	0.0428	0.0359	0.0097	0.0283	0.3775
25	0.2319	0.1718	0.1891	0.0966	0.1691	0.0966	0.1594	0.2712	0.3741	0.0345
26	0.0228	0.0359	0.0331	0.0331	0.0407	0.0462	0.0462	0.0490	0.0345	0.0580
27	0.0214	0.0173	0.0235	0.0366	0.0545	0.0449	0.0773	0.0297	0.0483	0.0359
28	0.0511	0.0573	0.0317	0.0345	0.0276	0.0290	0.0359	0.0421	0.0166	0.4817
29	0.0973	0.1201	0.0849	0.0242	0.0228	0.1021	0.2733	0.3361	0.3437	0.0338
30	0.0276	0.0269	0.0269	0.0269	0.0255	0.0421	0.0186	0.0331	0.0131	0.1263
31	0.3237	0.1622	0.2015	0.1311	0.1587	0.1567	0.0918	0.0628	0.0483	0.0421
32	0.0552	0.0414	0.0449	0.0207	0.0214	0.0221	0.0345	0.0324	0.0359	0.0497
33	0.0138	0.0352	0.0366	0.0469	0.0380	0.0269	0.0518	0.0386	0.0538	0.0366
34	0.0476	0.0614	0.0255	0.0221	0.0159	0.0269	0.0193	0.0214	0.0442	0.2954
35	0.1063	0.1435	0.1546	0.1187	0.0683	0.1035	0.1325	0.2947	0.3803	0.0317
36	0.0276	0.0173	0.0166	0.0290	0.0359	0.0221	0.0393	0.0304	0.0235	0.2491
37	0.1201	0.0994	0.1311	0.1691	0.1573	0.1063	0.0973	0.1035	0.1159	0.0552
38	0.0538	0.0449	0.0124	0.0338	0.0248	0.0228	0.0200	0.0352	0.0262	0.0414
39	0.0276	0.0352	0.0104	0.0166	0.0297	0.0338	0.0290	0.0614	0.0628	0.0483
40	0.0352	0.0366	0.0138	0.0221	0.0228	0.0097	0.0228	0.0331	0.0304	0.2588

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Inter-harmonics (Zwischenharmonische)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
75	0.0112	0.0169	0.0177	0.0174	0.0173	0.0168	0.0167	0.0093	0.0038	0.0024
125	0.0060	0.0067	0.0060	0.0060	0.0051	0.0051	0.0050	0.0034	0.0027	0.0027
175	0.0156	0.0148	0.0157	0.0178	0.0188	0.0192	0.0195	0.0194	0.0072	0.0022
225	0.0056	0.0071	0.0062	0.0065	0.0057	0.0056	0.0056	0.0046	0.0034	0.0067
275	0.0092	0.0120	0.0124	0.0131	0.0136	0.0139	0.0140	0.0138	0.0075	0.0024
325	0.0020	0.0025	0.0023	0.0025	0.0025	0.0028	0.0030	0.0026	0.0023	0.0090
375	0.0027	0.0030	0.0032	0.0036	0.0032	0.0034	0.0036	0.0046	0.0030	0.0016
425	0.0020	0.0022	0.0018	0.0019	0.0019	0.0021	0.0023	0.0020	0.0015	0.0039
475	0.0020	0.0023	0.0020	0.0018	0.0016	0.0018	0.0019	0.0023	0.0017	0.0013
525	0.0014	0.0013	0.0013	0.0014	0.0013	0.0013	0.0015	0.0012	0.0011	0.0021
575	0.0013	0.0015	0.0014	0.0013	0.0012	0.0013	0.0013	0.0012	0.0011	0.0010
625	0.0010	0.0011	0.0012	0.0013	0.0014	0.0016	0.0017	0.0011	0.0008	0.0011
675	0.0011	0.0011	0.0011	0.0011	0.0010	0.0011	0.0012	0.0012	0.0013	0.0008
725	0.0010	0.0010	0.0013	0.0013	0.0013	0.0014	0.0013	0.0012	0.0008	0.0015
775	0.0010	0.0010	0.0011	0.0011	0.0010	0.0011	0.0012	0.0012	0.0013	0.0007
825	0.0010	0.0008	0.0009	0.0010	0.0008	0.0009	0.0010	0.0009	0.0007	0.0015
875	0.0007	0.0008	0.0008	0.0008	0.0008	0.0008	0.0009	0.0008	0.0010	0.0007
925	0.0008	0.0007	0.0007	0.0007	0.0006	0.0007	0.0008	0.0007	0.0007	0.0011
975	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007	0.0008	0.0007	0.0006	0.0006
1025	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0007	0.0006	0.0007
1075	0.0006	0.0007	0.0008	0.0007	0.0007	0.0007	0.0008	0.0007	0.0005	0.0005
1125	0.0008	0.0006	0.0006	0.0005	0.0005	0.0006	0.0007	0.0006	0.0005	0.0006
1175	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005
1225	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0006	0.0005	0.0005	0.0005
1275	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006	0.0006	0.0005	0.0005	0.0005
1325	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006
1375	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006	0.0006	0.0005	0.0005
1425	0.0007	0.0006	0.0005	0.0005	0.0005	0.0005	0.0006	0.0005	0.0005	0.0005
1475	0.0006	0.0005	0.0004	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004
1525	0.0006	0.0005	0.0005	0.0004	0.0005	0.0005	0.0005	0.0004	0.0004	0.0006
1575	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0006
1625	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0006
1675	0.0005	0.0006	0.0005	0.0005	0.0005	0.0005	0.0006	0.0005	0.0004	0.0006
1725	0.0005	0.0004	0.0005	0.0004	0.0005	0.0005	0.0005	0.0005	0.0004	0.0006
1775	0.0005	0.0005	0.0004	0.0004	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004
1825	0.0005	0.0005	0.0004	0.0004	0.0004	0.0005	0.0005	0.0004	0.0004	0.0004
1875	0.0005	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004
1925	0.0005	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004
1975	0.0005	0.0006	0.0005	0.0006	0.0006	0.0005	0.0006	0.0005	0.0006	0.0004

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Higher frequencies (Höhere Frequenzen)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2.1	0.0028	0.0031	0.0047	0.0048	0.0082	0.0060	0.0036	0.0039	0.0048	0.0052
2.3	0.0034	0.0034	0.0052	0.0080	0.0105	0.0064	0.0033	0.0036	0.0040	0.0044
2.5	0.0029	0.0028	0.0031	0.0032	0.0033	0.0041	0.0090	0.0119	0.0096	0.0075
2.7	0.0022	0.0022	0.0026	0.0019	0.0028	0.0035	0.0092	0.0124	0.0106	0.0075
2.9	0.0024	0.0029	0.0025	0.0021	0.0023	0.0028	0.0035	0.0038	0.0039	0.0066
3.1	0.0028	0.0035	0.0030	0.0026	0.0030	0.0031	0.0025	0.0027	0.0039	0.0055
3.3	0.0046	0.0061	0.0045	0.0039	0.0045	0.0045	0.0041	0.0047	0.0056	0.0064
3.5	0.0074	0.0071	0.0060	0.0059	0.0058	0.0061	0.0061	0.0069	0.0067	0.0057
3.7	0.0086	0.0088	0.0089	0.0090	0.0090	0.0098	0.0100	0.0104	0.0103	0.0106
3.9	0.0047	0.0051	0.0053	0.0056	0.0058	0.0063	0.0064	0.0069	0.0077	0.0086
4.1	0.0032	0.0033	0.0034	0.0034	0.0037	0.0038	0.0039	0.0041	0.0042	0.0045
4.3	0.0024	0.0025	0.0025	0.0026	0.0027	0.0028	0.0029	0.0029	0.0030	0.0031
4.5	0.0020	0.0021	0.0021	0.0022	0.0022	0.0023	0.0023	0.0024	0.0025	0.0025
4.7	0.0035	0.0035	0.0035	0.0035	0.0037	0.0036	0.0036	0.0036	0.0037	0.0036
4.9	0.0015	0.0015	0.0015	0.0016	0.0016	0.0016	0.0017	0.0017	0.0017	0.0018
5.1	0.0014	0.0014	0.0014	0.0014	0.0015	0.0015	0.0015	0.0016	0.0016	0.0016
5.3	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013	0.0013	0.0013	0.0013	0.0014
5.5	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012	0.0012
5.7	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012	0.0012
5.9	0.0009	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0011	0.0010	0.0011
6.1	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013	0.0013	0.0013	0.0013
6.3	0.0010	0.0009	0.0009	0.0009	0.0010	0.0010	0.0010	0.0011	0.0011	0.0011
6.5	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0010	0.0010
6.7	0.0014	0.0014	0.0014	0.0014	0.0016	0.0017	0.0018	0.0019	0.0022	0.0024
6.9	0.0009	0.0008	0.0008	0.0008	0.0008	0.0009	0.0009	0.0009	0.0009	0.0009
7.1	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013	0.0014	0.0014	0.0014	0.0014
7.3	0.0008	0.0008	0.0008	0.0009	0.0008	0.0009	0.0009	0.0009	0.0009	0.0009
7.5	0.0008	0.0007	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
7.7	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008	0.0008	0.0008	0.0008
7.9	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008
8.1	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008
8.3	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
8.5	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
8.7	0.0006	0.0006	0.0006	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
8.9	0.0007	0.0006	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Model: SOFAR 12KTLX-G3										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Ordinal number (Ordnungszahl)	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2	0.0714	0.0799	0.1173	0.1054	0.0903	0.0757	0.0782	0.0862	0.0354	0.0395
3	0.0786	0.0746	0.0720	0.0720	0.0733	0.0771	0.0722	0.0779	0.0940	0.1149
4	0.0681	0.0633	0.0278	0.0362	0.0497	0.0478	0.0395	0.0331	0.0260	0.0259
5	0.1810	0.1867	0.3642	0.4132	0.4774	0.6881	1.0391	1.5309	1.9943	2.4972
6	0.0224	0.0240	0.0235	0.0257	0.0237	0.0234	0.0273	0.0271	0.0242	0.0241
7	0.0715	0.0617	0.1903	0.2481	0.3213	0.5315	0.8265	1.1604	1.3992	1.5809
8	0.0299	0.0393	0.0880	0.0685	0.0703	0.0532	0.0571	0.0677	0.0418	0.0337
9	0.0349	0.0398	0.0395	0.0389	0.0384	0.0370	0.0348	0.0354	0.0418	0.0471
10	0.0289	0.0248	0.0602	0.0451	0.0474	0.0334	0.0361	0.0376	0.0305	0.0405
11	0.0610	0.1531	0.2824	0.2737	0.3083	0.3709	0.4349	0.4965	0.5134	0.5209
12	0.0217	0.0234	0.0244	0.0257	0.0257	0.0244	0.0298	0.0301	0.0293	0.0279
13	0.0832	0.1024	0.2339	0.2231	0.2392	0.2611	0.3113	0.3662	0.4132	0.4785
14	0.0300	0.0358	0.0839	0.0583	0.0479	0.0368	0.0475	0.0633	0.0610	0.0633
15	0.0292	0.0264	0.0283	0.0285	0.0271	0.0304	0.0384	0.0349	0.0470	0.0394
16	0.0323	0.0320	0.0800	0.0525	0.0392	0.0267	0.0301	0.0315	0.0360	0.0395
17	0.0988	0.1619	0.2559	0.2747	0.2525	0.2471	0.2911	0.3169	0.3467	0.2985
18	0.0243	0.0258	0.0266	0.0273	0.0269	0.0249	0.0270	0.0277	0.0289	0.0286
19	0.1506	0.1608	0.2263	0.2378	0.2285	0.1874	0.1723	0.2573	0.3999	0.5733
20	0.0317	0.0339	0.0945	0.0621	0.0458	0.0380	0.0490	0.0589	0.0329	0.0355
21	0.0249	0.0274	0.0285	0.0274	0.0338	0.0394	0.0411	0.0406	0.0480	0.0373
22	0.0282	0.0393	0.0938	0.0535	0.0399	0.0303	0.0318	0.0313	0.0278	0.0279
23	0.2227	0.1029	0.2457	0.1777	0.2398	0.2909	0.3069	0.2980	0.2973	0.2601
24	0.0246	0.0231	0.0235	0.0260	0.0268	0.0274	0.0299	0.0300	0.0299	0.0284
25	0.1368	0.0903	0.2193	0.1557	0.2001	0.2217	0.1011	0.1145	0.1948	0.3142
26	0.0466	0.0366	0.0930	0.0545	0.0441	0.0302	0.0430	0.0508	0.0405	0.0389
27	0.0231	0.0249	0.0244	0.0253	0.0296	0.0410	0.0395	0.0446	0.0459	0.0491
28	0.0305	0.0503	0.0982	0.0447	0.0313	0.0266	0.0311	0.0336	0.0398	0.0351
29	0.1272	0.0437	0.1259	0.1293	0.0953	0.1396	0.2118	0.2770	0.3034	0.3013
30	0.0197	0.0187	0.0200	0.0209	0.0244	0.0260	0.0269	0.0287	0.0307	0.0312
31	0.1939	0.1168	0.1258	0.1210	0.0964	0.0922	0.0358	0.0494	0.1058	0.1577
32	0.0662	0.0293	0.0748	0.0440	0.0377	0.0257	0.0323	0.0428	0.0319	0.0308
33	0.0186	0.0201	0.0200	0.0223	0.0266	0.0346	0.0325	0.0356	0.0420	0.0428
34	0.0472	0.0624	0.1028	0.0403	0.0265	0.0268	0.0318	0.0340	0.0335	0.0307
35	0.0673	0.0967	0.0550	0.0460	0.0454	0.0601	0.1456	0.1984	0.2379	0.2604
36	0.0187	0.0151	0.0181	0.0178	0.0222	0.0232	0.0247	0.0246	0.0287	0.0297
37	0.1269	0.0458	0.1191	0.1477	0.1132	0.1250	0.1020	0.1052	0.0825	0.1203
38	0.0620	0.0409	0.0580	0.0319	0.0350	0.0230	0.0259	0.0277	0.0260	0.0294
39	0.0174	0.0193	0.0197	0.0210	0.0264	0.0296	0.0291	0.0300	0.0388	0.0426
40	0.0927	0.0675	0.1069	0.0434	0.0252	0.0284	0.0297	0.0330	0.0299	0.0284

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Inter-harmonics (Zwischenharmonische)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
75	0.0278	0.0278	0.0279	0.0456	0.0309	0.0309	0.0321	0.0353	0.0350	0.0400
125	0.0252	0.0258	0.0268	0.0300	0.0287	0.0284	0.0304	0.0325	0.0281	0.0293
175	0.0296	0.0310	0.0319	0.0343	0.0335	0.0321	0.0347	0.0375	0.0346	0.0349
225	0.0286	0.0316	0.0325	0.0349	0.0339	0.0326	0.0363	0.0383	0.0357	0.0367
275	0.0310	0.0354	0.0371	0.0396	0.0387	0.0373	0.0410	0.0445	0.0412	0.0413
325	0.0297	0.0345	0.0368	0.0382	0.0380	0.0362	0.0406	0.0447	0.0384	0.0391
375	0.0318	0.0369	0.0399	0.0417	0.0418	0.0395	0.0441	0.0484	0.0422	0.0422
425	0.0299	0.0349	0.0380	0.0391	0.0392	0.0376	0.0416	0.0467	0.0409	0.0409
475	0.0310	0.0366	0.0399	0.0402	0.0414	0.0393	0.0438	0.0477	0.0422	0.0426
525	0.0309	0.0356	0.0392	0.0410	0.0417	0.0397	0.0458	0.0500	0.0431	0.0439
575	0.0312	0.0351	0.0386	0.0413	0.0418	0.0404	0.0463	0.0517	0.0434	0.0442
625	0.0311	0.0353	0.0382	0.0395	0.0411	0.0397	0.0454	0.0515	0.0448	0.0444
675	0.0318	0.0346	0.0383	0.0391	0.0407	0.0388	0.0462	0.0514	0.0454	0.0452
725	0.0325	0.0358	0.0378	0.0365	0.0373	0.0376	0.0440	0.0510	0.0450	0.0450
775	0.0327	0.0384	0.0393	0.0380	0.0376	0.0366	0.0427	0.0487	0.0448	0.0462
825	0.0335	0.0397	0.0408	0.0400	0.0399	0.0365	0.0420	0.0487	0.0440	0.0458
875	0.0347	0.0414	0.0417	0.0427	0.0413	0.0384	0.0414	0.0474	0.0432	0.0455
925	0.0351	0.0409	0.0427	0.0433	0.0423	0.0395	0.0414	0.0451	0.0424	0.0445
975	0.0372	0.0420	0.0440	0.0457	0.0467	0.0421	0.0441	0.0459	0.0427	0.0443
1025	0.0350	0.0397	0.0416	0.0431	0.0442	0.0415	0.0446	0.0456	0.0421	0.0423
1075	0.0363	0.0399	0.0431	0.0436	0.0452	0.0446	0.0460	0.0469	0.0444	0.0436
1125	0.0344	0.0372	0.0402	0.0428	0.0448	0.0446	0.0471	0.0476	0.0434	0.0426
1175	0.0338	0.0372	0.0396	0.0420	0.0444	0.0445	0.0467	0.0476	0.0443	0.0435
1225	0.0326	0.0347	0.0377	0.0416	0.0433	0.0443	0.0465	0.0483	0.0460	0.0449
1275	0.0320	0.0330	0.0363	0.0402	0.0437	0.0435	0.0470	0.0484	0.0468	0.0455
1325	0.0312	0.0319	0.0348	0.0380	0.0418	0.0435	0.0465	0.0492	0.0480	0.0468
1375	0.0300	0.0312	0.0340	0.0372	0.0408	0.0428	0.0450	0.0474	0.0491	0.0480
1425	0.0290	0.0293	0.0334	0.0371	0.0403	0.0422	0.0462	0.0478	0.0486	0.0493
1475	0.0282	0.0285	0.0321	0.0362	0.0392	0.0421	0.0443	0.0465	0.0482	0.0508
1525	0.0275	0.0273	0.0311	0.0358	0.0374	0.0406	0.0454	0.0473	0.0488	0.0510
1575	0.0271	0.0261	0.0290	0.0331	0.0372	0.0404	0.0430	0.0453	0.0487	0.0507
1625	0.0256	0.0258	0.0294	0.0333	0.0364	0.0386	0.0450	0.0474	0.0480	0.0504
1675	0.0257	0.0246	0.0283	0.0316	0.0361	0.0409	0.0413	0.0452	0.0484	0.0503
1725	0.0251	0.0247	0.0293	0.0342	0.0344	0.0369	0.0421	0.0448	0.0465	0.0515
1775	0.0235	0.0240	0.0266	0.0304	0.0339	0.0378	0.0395	0.0437	0.0465	0.0505
1825	0.0231	0.0226	0.0263	0.0314	0.0320	0.0350	0.0393	0.0431	0.0457	0.0509
1875	0.0225	0.0219	0.0242	0.0286	0.0315	0.0343	0.0382	0.0426	0.0450	0.0504
1925	0.0214	0.0212	0.0241	0.0277	0.0313	0.0339	0.0377	0.0418	0.0450	0.0488
1975	0.0212	0.0204	0.0230	0.0266	0.0300	0.0325	0.0370	0.0422	0.0438	0.0491

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APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210109R1

Higher frequencies (Höhere Frequenzen)										
Active power (Wirkleistung) P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Frequenz (Frequency) [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
2.1	0.1831	0.1287	0.1601	0.1919	0.1602	0.1623	0.1977	0.1833	0.1837	0.1729
2.3	0.1309	0.0945	0.1763	0.1501	0.1031	0.1077	0.1502	0.1975	0.1162	0.1350
2.5	0.1273	0.1427	0.1213	0.1530	0.1735	0.1313	0.1467	0.1613	0.1586	0.1637
2.7	0.1425	0.1544	0.1782	0.1572	0.1949	0.1394	0.1902	0.1811	0.1913	0.1860
2.9	0.0946	0.1000	0.0648	0.1155	0.1437	0.1323	0.1460	0.1625	0.1894	0.1581
3.1	0.1362	0.0971	0.1290	0.1385	0.1016	0.0734	0.0834	0.1091	0.1580	0.1848
3.3	0.1125	0.1203	0.1042	0.1228	0.1318	0.1343	0.1228	0.1775	0.1547	0.1720
3.5	0.1090	0.0687	0.0737	0.0942	0.0967	0.0841	0.0884	0.0980	0.1458	0.1610
3.7	0.1127	0.0968	0.0901	0.1047	0.0968	0.1051	0.1045	0.1132	0.1237	0.1303
3.9	0.0961	0.1005	0.0592	0.1099	0.1159	0.1150	0.1188	0.1145	0.1234	0.1286
4.1	0.0717	0.0584	0.0799	0.0851	0.0919	0.0879	0.0973	0.1133	0.1066	0.0988
4.3	0.0778	0.0656	0.0875	0.1317	0.1374	0.1314	0.1304	0.1072	0.0976	0.1260
4.5	0.0887	0.0585	0.0785	0.1429	0.1482	0.1333	0.1388	0.1476	0.1555	0.1653
4.7	0.0743	0.0642	0.0762	0.1074	0.1286	0.1242	0.1282	0.1345	0.1262	0.1334
4.9	0.0650	0.0558	0.0698	0.1077	0.1026	0.0965	0.1157	0.1667	0.1790	0.1548
5.1	0.0476	0.0481	0.0488	0.0780	0.0787	0.0714	0.0768	0.1035	0.1255	0.1227
5.3	0.0353	0.0454	0.0424	0.0502	0.0517	0.0494	0.0551	0.0655	0.0750	0.0947
5.5	0.0357	0.0383	0.0363	0.0459	0.0384	0.0427	0.0460	0.0530	0.0564	0.0581
5.7	0.1115	0.1113	0.1109	0.1139	0.1146	0.1146	0.1169	0.1192	0.1177	0.1194
5.9	0.0281	0.0293	0.0329	0.0337	0.0319	0.0338	0.0353	0.0364	0.0358	0.0379
6.1	0.0228	0.0242	0.0269	0.0282	0.0275	0.0275	0.0267	0.0271	0.0271	0.0313
6.3	0.0275	0.0281	0.0274	0.0281	0.0293	0.0276	0.0267	0.0272	0.0268	0.0296
6.5	0.0210	0.0232	0.0244	0.0242	0.0253	0.0243	0.0241	0.0243	0.0240	0.0249
6.7	0.0248	0.0254	0.0268	0.0273	0.0277	0.0272	0.0269	0.0271	0.0262	0.0275
6.9	0.0308	0.0320	0.0332	0.0336	0.0346	0.0338	0.0337	0.0343	0.0339	0.0348
7.1	0.1084	0.1094	0.1094	0.1096	0.1112	0.1104	0.1116	0.1137	0.1123	0.1133
7.3	0.0221	0.0234	0.0238	0.0250	0.0249	0.0246	0.0256	0.0257	0.0259	0.0264
7.5	0.0302	0.0305	0.0319	0.0321	0.0327	0.0327	0.0329	0.0334	0.0325	0.0327
7.7	0.0171	0.0172	0.0177	0.0186	0.0188	0.0184	0.0188	0.0189	0.0188	0.0187
7.9	0.0137	0.0138	0.0145	0.0153	0.0157	0.0155	0.0154	0.0154	0.0153	0.0154
8.1	0.0140	0.0139	0.0144	0.0151	0.0160	0.0153	0.0156	0.0162	0.0160	0.0167
8.3	0.0136	0.0137	0.0142	0.0149	0.0155	0.0150	0.0152	0.0155	0.0156	0.0162
8.5	0.0126	0.0127	0.0134	0.0141	0.0147	0.0143	0.0145	0.0149	0.0149	0.0150
8.7	0.0132	0.0135	0.0142	0.0149	0.0158	0.0152	0.0156	0.0157	0.0155	0.0160
8.9	0.0118	0.0121	0.0130	0.0133	0.0140	0.0137	0.0138	0.0136	0.0137	0.0141

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EQUIPMENT CERTIFICATE

Certificate No.:	Issued:	Valid until:	GCC class
TC-GCC-DNVGL-SE-0124-08245-0	2022-02-17	Unlimited	TC ₁

Issued for:

PV Inverters SOFAR [3.3-12]KTL-X (PPM Type A)

With specifications and software version as listed in Annex 2

Issued to:

Shenzhen SOFARSOLAR Co., Ltd.

401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community, XinAn Street,
BaoAn District, Shenzhen, Guangdong P.R. China

According to:

DNVGL-SE-0124, 2016-03: Certification of Grid Code Compliance

**PTPIREE, 2021-04: Conditions and procedures for using certificates in the process
of connecting power generating modules to power networks**

32016R0631, 2016-04: Requirements for Generators (NC RfG)

**PSE, 2018-12: Requirements of general application resulting from Commission
Regulation (EU) 2016/631 of 14 April 2016**

detailed in Annex 1

Based on the document:

CR-GCC-DNVGL-SE-0124-08245-A072-0 Network Code Requirements for a PGU of Type A -
Poland, Certification Report, dated 2022-02-17

Further assessment information, including scope and conditions, is found in Annex 1. Description
of the PV inverters and type tests performed is found in Annex 2 and Annex 3 respectively.

Hamburg, 2022-02-17

For DNV Renewables Certification



Bente Vestergaard

Director and Service Line Leader Type
and Component Certification



By DAKKS according DIN EN IEC/ISO 17065
accredited Certification Body for products. The
accreditation is valid for the fields of certification
listed in the certificate.

Hamburg, 2022-02-17

For DNV Renewables Certification



Liselotte Ulvgård

Project Manager

EQUIPMENT CERTIFICATE – ANNEX 1

Certificate No.:

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Conditions, assessment criteria and scope of assessment

Provided that the conditions listed in section 1 are considered at project level, the PV inverters as further specified in Annex 2 comply with the requirements within scope of this certification, as specified in section 3.

1 Conditions

- Changes of the system design, hardware or the software of the certified PV inverters are to be approved by DNV.
- Inverter settings must finally be agreed and checked at project level to ensure grid code compliance, based on the requirements of relevant System Operator (SO). For the functionalities within scope of this certification, more information about the settings assessed is found in Control Settings in section 4.2 as well as the corresponding assessment sections 5.1-5.4 of the certification report CR-GCC-DNVGL-SE-0124-08245-A072-0.
- The capability of remote control has been shown on unit level but must finally be ensured at project level, considering any further requirements of relevant System Operator (SO) and the full communication network. For the functionalities within scope of this certification, this concerns remote cessation of active power and remote blocking and control of LFSM-O, as further described in section 5.3 and 5.4 of the certification report CR-GCC-DNVGL-SE-0124-08245-A072-0.

2 Assessment criteria and normative references for this certificate:

- /A/ Service Specification DNVGL-SE-0124: Certification of Grid Code Compliance, DNV GL, March 2016
- /B/ Conditions and procedures for using certificates in the process of connecting power generating modules to power networks, Warunki i procedury wykorzystania certyfikatów w procesie przyłączenia modułów wytwarzania energii do sieci elektroenergetycznych, version 1.2, PTPIREE, dated 2021-04-28, (in the following: PTPIREE 2021-04)
- /C/ Requirements of general application resulting from Commission Regulation (EU) 2016/631 of 14 April 2016 establishing a network code on requirements for grid connection of generators (NC RfG) – as approved by the decision of the President of the Energy Regulatory Office DRE.WOSE.7128.550.2.2018.ZJ dated January 2nd 2019, Wymogi ogólnego stosowania wynikające z Rozporządzenia Komisji (UE) 2016/631 z dnia 14 kwietnia 2016 r. ustanawiającego kodeks sieci dotyczący wymogów w zakresie przyłączenia jednostek wytwórczych do sieci (NC RfG), PSE S.A., dated 2018-12-18 zatwierdzone Decyzją Prezesa Urzędu Regulacji Energetyki DRE.WOSE.7128.550.2.2018.ZJ z dnia 2 stycznia 2019 r, (in the following: PSE 2018-12)
- /D/ Commission Regulation (EU) 2016/631 of 14 April 2016 establishing a network code on requirements for grid connection of generators, published in the Official Journal of the European Union L112/1, The European Commission, 27/04/2016. Document 32016R0631, (in the following: NC RfG)

3 Scope of assessment and results

The following functionalities have been assessed based on the rules for the use of equipment certificates for Power Park Modules (PPMs), as specified in chapter 7 and 9 of the PTPIREE 2021-04 /B/. The functions denoted "Not Applicable" in the table of chapter 7 has not been included.

Capability	NC RfG /D/	PSE 2018-12 /C/	Type A	Assessment result (*)
Frequency range	13.1 (a)	13.1 (a)(i)	x	Compliant
Rate of Change of Frequency (RoCoF) withstand capability, df/dt	13.1 (b)	13.1 (b)	x	Compliant
Remote cessation of active power	13.6	13.6	x	Compliant
Limited Frequency Sensitive Mode – Over Frequency (LFSM-O)	13.2	13.2 (a), (b), (f)	x	Compliant

(*) Please note also the corresponding conditions for compliance, as stated in section 1

EQUIPMENT CERTIFICATE – ANNEX 2

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Schematic description and technical data of the generating units

1 Schematic description of the generating unit

The SOFARSOLAR solar inverter family SOFAR [3.3-12]KTL-X, consisting of: SOFAR 3.3KTL-X, SOFAR 4.4KTL-X, SOFAR 5.5KTL-X, SOFAR 6.6KTL-X, SOFAR 8.8KTL-X, SOFAR 11KTL-X and SOFAR 12KTL-X convert electrical energy generated by photovoltaic modules (DC) to three-phase alternating current (AC).

They run at 400 V rated output voltage with a rated active power output of 3 kW to 12 kW. The different output power variants are achieved through derating via software. There is no further difference in the hardware or firmware used, as stated by the manufacturer.

The electrical data of the generating unit is summarized in the following section.

2 Technical data of main components

According to the documents provided by the manufacturer, the following components are used.

2.1 General Specifications

Generating Unit	SOFAR 3.3KTL-X	SOFAR 4.4KTL-X	SOFAR 5.5KTL-X	SOFAR 6.6KTL-X
No. of phases	3	3	3	3
Rated apparent power	3300 VA	4400 VA	5500 VA	6600 VA
Rated active power	3000 W	4000 W	5000 W	6000 W
Rated AC-voltage (phase to phase)	400 Vac	400 Vac	400 Vac	400 Vac
Rated frequency	50 Hz	50Hz	50Hz	50 Hz
	SOFAR 8.8KTL-X	SOFAR 11KTL-X	SOFAR 12KTL-X	
No. of phases	3	3	3	
Rated apparent power	8800 VA	11000 VA	13200 VA	
Rated active power	8000 W	10000 W	12000 W	
Rated AC-voltage (phase to phase)	400 Vac	400 Vac	400 Vac	
Rated frequency	50 Hz	50 Hz	50/ Hz	

2.2 DC Input

Min. MPPT voltage	160 V
Max. MPPT voltage	960 V
Max. DC input voltage	1000 V
Max. DC input current	11 A/11 A

2.3 Software Version

Software version	V320
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2.4 Unit transformer

The transformer is not part of the generating unit and consequently has not been part of the assessment.

2.6 Grid Protection

The protection is not part of certification scope

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2.7 Control settings

The control interface allows for the selection of different parameter sets via the “Country code” field, which provide default settings based on specific grid codes and national requirements. For this certification report the parameter set called “12” in the display interface, was assessed for the functionalities within scope of this certification.

It should be noted that compliance can be achieved also with other parameter sets and control settings, but that changes to control settings will affect the inverter control behaviour which can thus affect compliance. It should be noted the final settings must be agreed on project level in agreement with relevant system operator.

Protection settings has not been part of the assessment. Since these could intervene with and affect the compliance of the assessed functionalities, this must be further assessed at project level.

EQUIPMENT CERTIFICATE – ANNEX 3

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Type tests

1 Type tests

Tests were performed between 2021-10-12 and 2021-10-27 in the SOFARSOLAR lab in Shenzhen in P.R. China. All tests were performed under ISO-17025 accreditation, and they were performed on the SOFAR 12KTL-X unit.

The results used for assessment are documented in the measurement report(s) as specified below:

Scope	Reference
Frequency range	3.1 of /1/
Rate of Change of Frequency (RoCoF) withstand capability, df/dt	3.2 of /1/
Remote cessation of active power	3.3 of /1/
Limited Frequency Sensitive Mode – over frequency (LFSM-O)	3.4 of /1/

Test report(s)	Document number	Content
/1/	10305241-SHA-TR-04-A	Measurement of power control characteristics of a PV inverter of the type SOFAR 12KTL-X according to FGW TG3 Rev. 25 and Polish Grid Code

The tests results have been assessed against the requirements of PSE 2018-12 /C/ and NC RfG /D/. Further details are described in the corresponding certification report CR-GCC-DNVGL-SE-0124-08245-A072-0.