

Prüfbericht-Nr.: <i>Test report no.:</i>	CN24UABX 001	Auftrags-Nr.: <i>Order no.:</i>	326034280	Seite 1 von 31 Page 1 of 31
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	2003835	Auftragsdatum: <i>Order date:</i>	2024-06-26	
Auftraggeber: <i>Client:</i>	Shanghai CHINT Power Systems Co., Ltd. No. 5999, Guangfulin Road, Songjiang District, 201616 Shanghai, P. R. China			
Prüfgegenstand: <i>Test item:</i>	Grid-connected PV inverter(Grid-Tie PV Inverter)			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	SCH350K-T-EU, SCH333K-T-EU, SCH320K-T-EU			
Auftrags-Inhalt: <i>Order content:</i>	AK certificate			
Prüfgrundlage: <i>Test specification:</i>	IEC TS 61000-3-5: 2009 IEC 61000-3-12: 2011+A1			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2024-06-29			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003787408-001			
Prüfzeitraum: <i>Testing period:</i>	2024-07-29 - 2024-08-02			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: tested by: Eva Wu/ Tianwei Wang	<i>Eva Wu</i>	genehmigt von: authorized by: Chu Sun	<i>Chu Sun</i>	
Datum: Date: 2024-08-04	<i>Tianwei Wang</i>	Ausstellungsdatum: Issue date: 2024-08-04		
Stellung / Position:	Project Engineer / Trainee	Stellung / Position:	Authorizer	
Sonstiges / <i>Other:</i>	N/A			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

Prüfbericht-Nr.: CN24UABX 001
Test report no.:

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Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.</i> <i>Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>		
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. Informationen zur Verifizierung der Authentizität unserer Dokumente erhalten Sie auf folgender Webseite: go.tuv.com/digital-signature <i>As contractually agreed, this document has been signed digitally only. TÜV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TÜV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged. For information on verifying the authenticity of our documents, please visit the following website: go.tuv.com/digital-signature</i>		
3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>		
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>		

TEST REPORT IEC TS 61000-3-5 Electromagnetic compatibility (EMC) – Part 3-5: Limits – Limitation of voltage fluctuations and flicker in low-voltage power supply systems for equipment with rated current greater than 75 A	
Report Reference No.	CN24UABX 001
Compiled by (+ signature)	See cover page
Approved by (+ signature)	See cover page
Date of issue	See cover page
Total number of pages	See cover page
CB/CCA Testing Laboratory	See cover page
Address	See cover page
Applicant's name	Shanghai CHINT Power Systems Co., Ltd.
Address	No. 5999, Guangfulin Road, Songjiang District, 201616 Shanghai, P. R. China
Test specification:	
Standard	IEC TS 61000-3-5:2009 (Edition 2.0)
Test procedure	AK Certificate
Non-standard test method	N/A
Test Report Form No.	IEC/TS 61000-3-5:2009 (Edition 2.0)
Test Report Form(s) Originator	TÜV Rheinland
Master TRF	Dated 2021-06
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1. Program details

Testing procedure and testing location:	
☐ CB Testing Laboratory: Testing location/ address :	
☐ Associated CB Test Laboratory: Testing location/ address : Tested by (name + signature)..... : Approved by (+ signature) :	
☐ Testing procedure: TMP Tested by (name + signature)..... : Approved by (+ signature) : Testing location/ address :	
☐ Testing procedure: WMT Tested by (name + signature)..... : Witnessed by (+ signature)..... : Approved by (+ signature) : Testing location/ address :	
☐ Testing procedure: SMT Tested by (name + signature)..... : Approved by (+ signature) : Supervised by (+ signature)..... : Testing location/ address :	
☐ Testing procedure: RMT Tested by (name + signature)..... : Approved by (+ signature) : Supervised by (+ signature)..... : Testing location/ address :	

Summary of testing:								
Tests performed (name of test and test clause): <table border="1"> <thead> <tr> <th>Clause(s)</th> <th>Test(s)</th> <th>Model(s)</th> </tr> </thead> <tbody> <tr> <td>cl. 6</td> <td>Test, measurement and evaluation procedures</td> <td>SCH350K-T-EU</td> </tr> </tbody> </table> The test performed on model SCH350K-T-EU		Clause(s)	Test(s)	Model(s)	cl. 6	Test, measurement and evaluation procedures	SCH350K-T-EU	Testing location:
Clause(s)	Test(s)	Model(s)						
cl. 6	Test, measurement and evaluation procedures	SCH350K-T-EU						
Summary of compliance with National Differences: N/A								

Copy of marking plate:



Grid-Tie PV Inverter

Model No.: SCH320K-T-EU

Vmax. PV(absolute max.):	1500Vdc
MPPT voltage range:	500—1500Vdc
Full power MPPT voltage range:	880—1300Vdc
Number of PV MPPT:	12
Max. PV input current:	40A x 12
Isc PV(absolute max.):	60A x 12
Nominal DC input power:	330kW
Nominal AC grid voltage:	3/PE ~ 800V
Nominal AC grid frequency:	50/60Hz
Max. AC output current:	a.c. 254A
AC nominal power:	320kW
Max. AC output power:	352kVA
Power factor@rated power:	>0.99(adj.±0.8)
Max. efficiency:	99.0%
Operating temperature range:	-30°C—+60°C
Ingress protection:	IP66
Protective class:	Class I
Overvoltage category:	III(Mains),II(PV)

Manufacturer Address: No. 5999, Guangfulin Road, Songjiang District,
201616 Shanghai, P. R. China
Made in China






www.chintpower.com

Serial Number



Type Approved
Safety
Regular Production
Surveillance

www.tuv.com
ID 3000000000



Grid-Tie PV Inverter

Model No.: SCH320K-T-EU

Vmax. PV(absolute max.):	1500Vdc
MPPT voltage range:	500—1500Vdc
Full power MPPT voltage range:	880—1300Vdc
Number of PV MPPT:	15
Max. PV input current:	40A x 15
Isc PV(absolute max.):	60A x 15
Nominal DC input power:	330kW
Nominal AC grid voltage:	3/PE ~ 800V
Nominal AC grid frequency:	50/60Hz
Max. AC output current:	a.c. 254A
AC nominal power:	320kW
Max. AC output power:	352kVA
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Manufacturer Address: No. 5999, Guangfulin Road, Songjiang District,
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Made in China






www.chintpower.com

Serial Number



Type Approved
Safety
Regular Production
Surveillance

www.tuv.com
ID 3000000000

 CHNT POWER	Grid-Tie PV Inverter
Model No.:	SCH333K-T-EU
Vmax. PV(absolute max.):	1500Vdc
MPPT voltage range:	500—1500Vdc
Full power MPPT voltage range:	880—1300Vdc
Number of PV MPPT:	12
Max. PV input current:	40A x 12
Isc PV(absolute max.):	60A x 12
Nominal DC input power:	345kW
Nominal AC grid voltage:	3/PE ~ 800V
Nominal AC grid frequency:	50/60Hz
Max. AC output current:	a.c. 241A
AC nominal power:	333kW
Max. AC output power:	333kVA
Power factor@rated power:	>0.99(adj.±0.8)
Max. efficiency:	99.0%
Operating temperature range:	-30°C—+60°C
Ingress protection:	IP66
Protective class:	Class I
Overvoltage category:	III(Mains),II(PV)
Manufacturer Address: No. 5999, Guangfulin Road, Songjiang District, 201616 Shanghai, P. R. China Made in China	
   	
www.chintpower.com	
Serial Number	 Type Approved Safety Regular Production Surveillance www.tuv.com ID 2000000000

 CHNT POWER	Grid-Tie PV Inverter
Model No.:	SCH333K-T-EU
Vmax. PV(absolute max.):	1500Vdc
MPPT voltage range:	500—1500Vdc
Full power MPPT voltage range:	880—1300Vdc
Number of PV MPPT:	15
Max. PV input current:	40A x 15
Isc PV(absolute max.):	60A x 15
Nominal DC input power:	345kW
Nominal AC grid voltage:	3/PE ~ 800V
Nominal AC grid frequency:	50/60Hz
Max. AC output current:	a.c. 241A
AC nominal power:	333kW
Max. AC output power:	333kVA
Power factor@rated power:	>0.99(adj.±0.8)
Max. efficiency:	99.0%
Operating temperature range:	-30°C—+60°C
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Overvoltage category:	III(Mains),II(PV)
Manufacturer Address: No. 5999, Guangfulin Road, Songjiang District, 201616 Shanghai, P. R. China Made in China	
   	
www.chintpower.com	
Serial Number	 Type Approved Safety Regular Production Surveillance www.tuv.com ID 2000000000

 CHINT POWER Grid-Tie PV Inverter Model No.: SCH350K-T-EU <table> <tr> <td>Vmax. PV(absolute max.):</td> <td>1500Vdc</td> </tr> <tr> <td>MPPT voltage range:</td> <td>500—1500Vdc</td> </tr> <tr> <td>Full power MPPT voltage range:</td> <td>880—1300Vdc</td> </tr> <tr> <td>Number of PV MPPT:</td> <td>12</td> </tr> <tr> <td>Max. PV input current :</td> <td>40A x 12</td> </tr> <tr> <td>Isc PV(absolute max.):</td> <td>60A x 12</td> </tr> <tr> <td>Nominal DC input power :</td> <td>360kW</td> </tr> <tr> <td>Nominal AC grid voltage:</td> <td>3/PE ~ 800V</td> </tr> <tr> <td>Nominal AC grid frequency:</td> <td>50/60Hz</td> </tr> <tr> <td>Max. AC output current:</td> <td>a.c. 253A</td> </tr> <tr> <td>AC nominal power:</td> <td>350kW</td> </tr> <tr> <td>Max. AC output power:</td> <td>350kVA</td> </tr> <tr> <td>Power factor@rated power:</td> <td>>0.99(adj.±0.8)</td> </tr> <tr> <td>Max. efficiency:</td> <td>99.0%</td> </tr> <tr> <td>Operating temperature range:</td> <td>-30°C—+60°C</td> </tr> <tr> <td>Ingress protection:</td> <td>IP66</td> </tr> <tr> <td>Protective class:</td> <td>Class I</td> </tr> <tr> <td>Overvoltage category:</td> <td>III(Mains),II(PV)</td> </tr> </table> Manufacturer Address: No. 5999, Guangfulin Road, Songjiang District, 201616 Shanghai, P. R. China Made in China     www.chintpower.com Serial Number  Type Approved Safety Regular Production Surveillance www.tuv.com ID: 0000000000	Vmax. PV(absolute max.):	1500Vdc	MPPT voltage range:	500—1500Vdc	Full power MPPT voltage range:	880—1300Vdc	Number of PV MPPT:	12	Max. PV input current :	40A x 12	Isc PV(absolute max.):	60A x 12	Nominal DC input power :	360kW	Nominal AC grid voltage:	3/PE ~ 800V	Nominal AC grid frequency:	50/60Hz	Max. AC output current:	a.c. 253A	AC nominal power:	350kW	Max. AC output power:	350kVA	Power factor@rated power:	>0.99(adj.±0.8)	Max. efficiency:	99.0%	Operating temperature range:	-30°C—+60°C	Ingress protection:	IP66	Protective class:	Class I	Overvoltage category:	III(Mains),II(PV)	 CHINT POWER Grid-Tie PV Inverter Model No.: SCH350K-T-EU <table> <tr> <td>Vmax. PV(absolute max.):</td> <td>1500Vdc</td> </tr> <tr> <td>MPPT voltage range:</td> <td>500—1500Vdc</td> </tr> <tr> <td>Full power MPPT voltage range:</td> <td>880—1300Vdc</td> </tr> <tr> <td>Number of PV MPPT:</td> <td>15</td> </tr> <tr> <td>Max. PV input current :</td> <td>40A x15</td> </tr> <tr> <td>Isc PV(absolute max.):</td> <td>60A x15</td> </tr> <tr> <td>Nominal DC input power :</td> <td>360kW</td> </tr> <tr> <td>Nominal AC grid voltage:</td> <td>3/PE ~ 800V</td> </tr> <tr> <td>Nominal AC grid frequency:</td> <td>50/60Hz</td> </tr> <tr> <td>Max. AC output current:</td> <td>a.c. 253A</td> </tr> <tr> <td>AC nominal power:</td> <td>350kW</td> </tr> <tr> <td>Max. AC output power:</td> <td>350kVA</td> </tr> <tr> <td>Power factor@rated power:</td> <td>>0.99(adj.±0.8)</td> </tr> <tr> <td>Max. efficiency:</td> <td>99.0%</td> </tr> <tr> <td>Operating temperature range:</td> <td>-30°C—+60°C</td> </tr> <tr> <td>Ingress protection:</td> <td>IP66</td> </tr> <tr> <td>Protective class:</td> <td>Class I</td> </tr> <tr> <td>Overvoltage category:</td> <td>III(Mains),II(PV)</td> </tr> </table> Manufacturer Address: No. 5999, Guangfulin Road, Songjiang District, 201616 Shanghai, P. R. China Made in China     www.chintpower.com Serial Number  Type Approved Safety Regular Production Surveillance www.tuv.com ID: 0000000000	Vmax. PV(absolute max.):	1500Vdc	MPPT voltage range:	500—1500Vdc	Full power MPPT voltage range:	880—1300Vdc	Number of PV MPPT:	15	Max. PV input current :	40A x15	Isc PV(absolute max.):	60A x15	Nominal DC input power :	360kW	Nominal AC grid voltage:	3/PE ~ 800V	Nominal AC grid frequency:	50/60Hz	Max. AC output current:	a.c. 253A	AC nominal power:	350kW	Max. AC output power:	350kVA	Power factor@rated power:	>0.99(adj.±0.8)	Max. efficiency:	99.0%	Operating temperature range:	-30°C—+60°C	Ingress protection:	IP66	Protective class:	Class I	Overvoltage category:	III(Mains),II(PV)
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Test item description	Grid-Connected PV Inverter
Trade Mark	
Manufacturer	Same as the applicant
Model/Type reference	See cover page
Ratings	See copy of marking plate for details

Possible test case verdicts:	
- test case does not apply to the test object..:	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement..:	F (Fail)

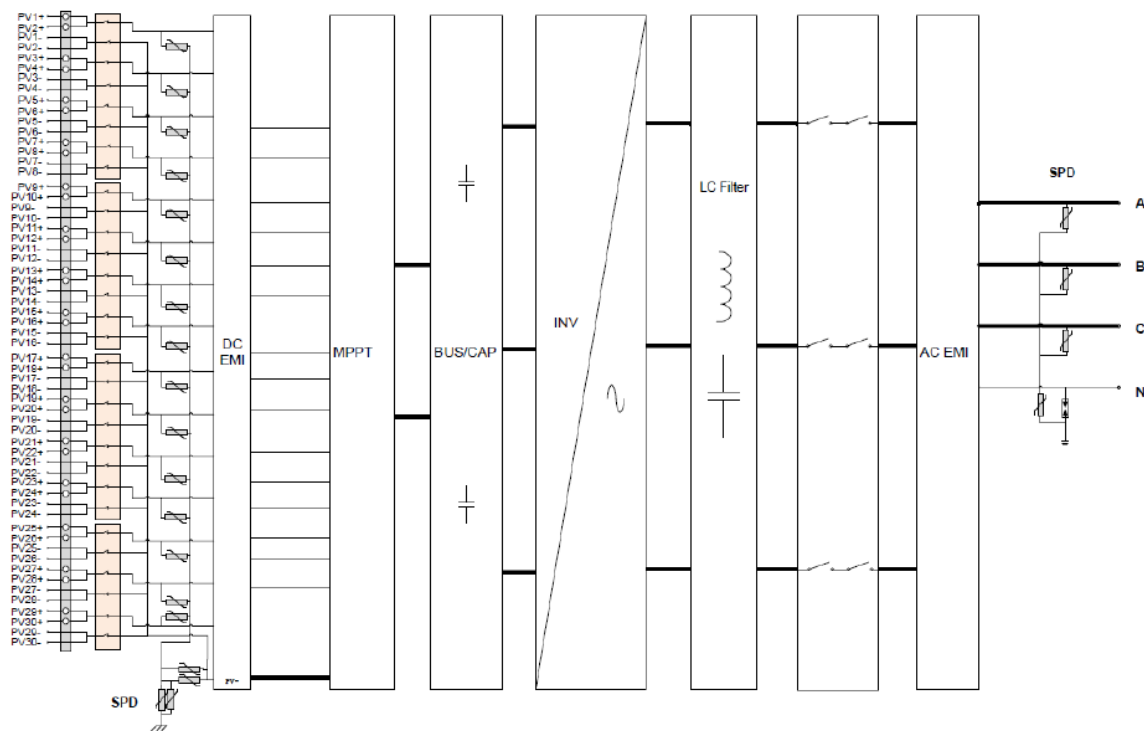
Testing	
Date of receipt of test item.....:	See cover page
Date (s) of performance of tests.....:	See cover page

General product information:

Breif description:

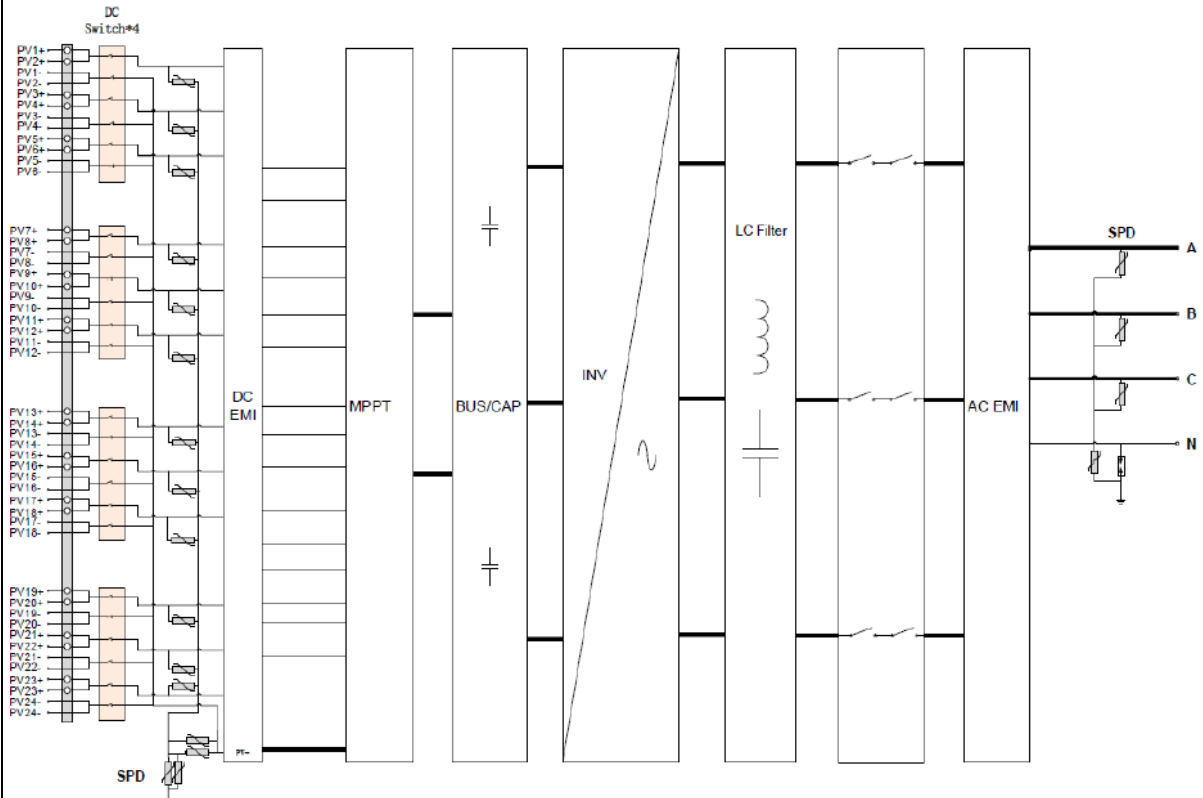
The PCEs under test SCH320K-T-EU, SCH333K-T-EU and SCH350K-T-EU are three-phase grid connected inverter for solar power generation. The Grid-connected PV Inverter utilize the advanced power conversion technology IGBT to convert the DC power normally from the photovoltaic array to stable three-phase AC power and then feed the power to the utility grid.

320/333/350KW 15MPPT Frame Diagram



The diagram illustrates the internal structure of the 320/333/350KW 15MPPT Frame Diagram. It shows a series of components connected in sequence: a DC EMI filter, followed by 15 MPPT (Maximum Power Point Tracking) units, a BUS/CAP (DC link capacitor), an INV (Inverter) stage, an LC Filter, and finally an AC EMI filter. The output is connected to a three-phase AC system (A, B, C) with a neutral line (N). A SPD (Surge Protection Device) is shown at the input and output. The input side shows 30 PV modules (PV1 to PV30) connected to the DC EMI filter. The output side shows the AC EMI filter connected to the three-phase AC system.

320/333/350KW 12MPPT Frame Diagram



Description of the differences of the models within a series:

The model SCH320K-T-EU and SCH333K-T-EU is identical in hardware and software with SCH350K-T-EU, except for electrical ratings and model name. Electrical ratings see below model list.

The product was tested on:

Unless otherwise specified, all tests were conducted on basic model of SCH350K-T-EU 15 strings to represent another model.

Software version: DSP:01.03.00

Serial number: 1108900124030001

Model list:

MODELS LIST		SCH320K-T-EU	SCH333K-T-EU	SCH350K-T-EU
INPUT	V _{MAX} PV [Vdc]	1500		
	I _{SC} PV [A]	60*12 / 60*15		
	MPP Voltage Range V _{MPP} [Vdc]	500-1500		
	Max. Input Current I _{max} [A]	40*12 / 40*15		
	MPP Full Power Voltage Range [Vdc]	880-1300		
	Start PV Voltage [Vdc]	550		
	Backfeed Current [A]	0		
	Overvoltage Category (OVC)	II		
	No. of MPP trackers	12/15		
	Strings per MPP tracker	2		
OUTPUT	Rated Output Voltage U _r [Vac]	3/PE~ 800V		
	Normal Operating Voltage Range U _n [Vac]	680-880		
	Rated Output Frequency F _{NETZ} [Hz]	50/60		
	Normal Operating Frequency Range F _n [Hz]	45-55/55-65		
	Rated Output Power P _E [kW]	320	333	350
	Max. Output Power P _{Emax} [kVA]	352	333	350
	Max. Output Current I _{max} [A]	254	241	253
	Power Factor cosφ [λ]	[-0.8, 0.8]		
	Standby Power Consumption [W]	<50		

SYSTEM	Night Power Consumption [W]	<5
	THD [$\sqrt{}$ / I] (100% full power)	<3%
	Acoustic Noise [dB]	<80
	Overvoltage Category (OVC)	III
	Protective Class	I
	Enclosure Protection (IP)	IP66
	Operating Temperature Range [°C]	-30 to +60(>45 derating)
	Pollution degree (PD)	PD 2
	Altitude [m]	4000
	Array Insulation Resistance Detection [Ω]	50k
	The accuracy of resistance measurement [%]	<10
	Weight [kg]	143
	Size [mm]	1057W*810H*400Dmm
	Firmware version	LCD: 01 DSP: 01.03.00

Software version: DSP:01.03.00

Serial number: 1108900124030001

1.1. Equipment Used During Test:

EUT Operation Modes:

Mode #	Description
1	Grid connected mode

1.2. Result Summary

IEC TS 61000-3-5:2009			
Phenomenon	Port	Operation mode	Verdict
Voltage changes, voltage fluctuations and flicker	AC Mains	Mode #1	Pass

2. Test conditions and results

2.1. Control Method of Equipment

☒ without additional conditions
☐ switched manually, or
switched automatically more frequently than twice per day, and also has either a delayed restart (the delay not less than a few tens of seconds), or manual restart, after a power supply interruption
☐ attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

2.2. Description of the test location

Test location:

No. 177/178, Lane 777 West Guangzhong Road, Jing'an District, Shanghai, P.R.China

2.3. Test protocol

Parameters required prior to the test	Laboratory ambient temperature:	25.8°C
	Relative humidity:	62.3%
	Air pressure:	101.2kPa
<u>Operation Mode:</u>	Operation Mode #1	
<u>Result:</u>	☒ passed	☐ not passed

2.4. Modification during the test

None

2.5. Test results

Flicker - Generation units with a rated current > 75 A			P
L1			
Grid impedance angle, ψ_k : 30°			
Measurement	Plt	0.0005	
	P/Pn [%]	Pst	C Ψ k
1	10	0.0005	0.0075
2	20	0.0005	0.0075
3	30	0.0005	0.0075
4	40	0.0005	0.0075
5	50	0.0006	0.0090
6	60	0.0005	0.0075
7	70	0.0005	0.0075
8	80	0.0005	0.0075
9	90	0.0005	0.0075
10	100	0.0005	0.0075
11	100	0.0010	0.0150
12	100	0.0010	0.0150
L1			
Grid impedance angle, ψ_k : 50°			
Measurement	Plt	0.0006	
	P/Pn [%]	Pst	C Ψ k
1	10	0.0005	0.0075
2	20	0.0005	0.0075
3	30	0.0005	0.0075
4	40	0.0005	0.0075
5	50	0.0005	0.0075
6	60	0.0005	0.0075
7	70	0.0005	0.0075
8	80	0.0005	0.0075
9	90	0.0005	0.0075
10	100	0.0005	0.0075
11	100	0.0008	0.0120
12	100	0.0008	0.0120
L1			
Grid impedance angle, ψ_k : 70°			
Measurement	Plt	0.00021	

	P/Pn [%]	Pst	CΨk
1	10	0.0005	0.0075
2	20	0.0005	0.0075
3	30	0.0005	0.0075
4	40	0.0005	0.0075
5	50	0.0005	0.0075
6	60	0.0005	0.0075
7	70	0.0005	0.0075
8	80	0.0005	0.0075
9	90	0.0005	0.0075
10	100	0.0005	0.0075
11	100	0.0006	0.0090
12	100	0.0006	0.0090
L1			
Grid impedance angle, ψ_k : 85°			
Measurement	Plt	0.0005	
	P/Pn [%]	Pst	CΨk
1	10	0.0005	0.0075
2	20	0.0005	0.0075
3	30	0.0005	0.0075
4	40	0.0005	0.0075
5	50	0.0005	0.0075
6	60	0.0005	0.0075
7	70	0.0005	0.0075
8	80	0.0005	0.0075
9	90	0.0005	0.0075
10	100	0.0005	0.0075
11	100	0.0006	0.0090
12	100	0.0006	0.0090
L2			
Grid impedance angle, ψ_k : 30°			
Measurement	Plt	0.0005	
	P/Pn [%]	Pst	CΨk
1	10	0.0005	0.0075
2	20	0.0005	0.0075
3	30	0.0005	0.0075

4	40	0.0005	0.0075
5	50	0.0005	0.0075
6	60	0.0005	0.0075
7	70	0.0005	0.0075
8	80	0.0005	0.0075
9	90	0.0005	0.0075
10	100	0.0005	0.0075
11	100	0.0011	0.0165
12	100	0.0011	0.0165
L2			
Grid impedance angle, ψ_k : 50°			
Measurement	Plt	0.0006	
	P/Pn [%]	Pst	C Ψ_k
1	10	0.0005	0.0075
2	20	0.0005	0.0075
3	30	0.0005	0.0075
4	40	0.0005	0.0075
5	50	0.0005	0.0075
6	60	0.0005	0.0075
7	70	0.0005	0.0075
8	80	0.0005	0.0075
9	90	0.0005	0.0075
10	100	0.0005	0.0075
11	100	0.0008	0.0120
12	100	0.0008	0.0120
L2			
Grid impedance angle, ψ_k : 70°			
Measurement	Plt	0.0005	
	P/Pn [%]	Pst	C Ψ_k
1	10	0.0005	0.0075
2	20	0.0005	0.0075
3	30	0.0005	0.0075
4	40	0.0005	0.0075
5	50	0.0005	0.0075
6	60	0.0005	0.0075
7	70	0.0005	0.0075

8	80	0.0005	0.0075
9	90	0.0005	0.0075
10	100	0.0005	0.0075
11	100	0.0006	0.0090
12	100	0.0006	0.0090
L2			
Grid impedance angle, ψ_k : 85°			
Measurement	Plt	0.0005	
	P/Pn [%]	Pst	C Ψ_k
1	10	0.0005	0.0075
2	20	0.0005	0.0075
3	30	0.0005	0.0075
4	40	0.0005	0.0075
5	50	0.0005	0.0075
6	60	0.0005	0.0075
7	70	0.0005	0.0075
8	80	0.0005	0.0075
9	90	0.0005	0.0075
10	100	0.0005	0.0075
11	100	0.0006	0.0090
12	100	0.0006	0.0090
L3			
Grid impedance angle, ψ_k : 30°			
Measurement	Plt	0.0005	
	P/Pn [%]	Pst	C Ψ_k
1	10	0.0005	0.0075
2	20	0.0005	0.0075
3	30	0.0005	0.0075
4	40	0.0005	0.0075
5	50	0.0005	0.0075
6	60	0.0005	0.0075
7	70	0.0005	0.0075
8	80	0.0005	0.0075
9	90	0.0005	0.0075
10	100	0.0005	0.0075
11	100	0.0011	0.0165

12	100	0.0011	0.0165
L3			
Grid impedance angle, ψ_k : 50°			
Measurement	Plt	0.0006	
	P/Pn [%]	Pst	C Ψ_k
1	10	0.0005	0.0075
2	20	0.0005	0.0075
3	30	0.0005	0.0075
4	40	0.0005	0.0075
5	50	0.0005	0.0075
6	60	0.0005	0.0075
7	70	0.0005	0.0075
8	80	0.0005	0.0075
9	90	0.0005	0.0075
10	100	0.0005	0.0075
11	100	0.0010	0.0150
12	100	0.0010	0.0150
L3			
Grid impedance angle, ψ_k : 70°			
Measurement	Plt	0.0006	
	P/Pn [%]	Pst	C Ψ_k
1	10	0.0005	0.0075
2	20	0.0005	0.0075
3	30	0.0005	0.0075
4	40	0.0005	0.0075
5	50	0.0005	0.0075
6	60	0.0005	0.0075
7	70	0.0005	0.0075
8	80	0.0005	0.0075
9	90	0.0005	0.0075
10	100	0.0005	0.0075
11	100	0.0008	0.0120
12	100	0.0008	0.0120
L3			
Grid impedance angle, ψ_k : 85°			
Measurement	Plt	0.0006	

	P/Pn [%]	Pst	C Ψ k
1	10	0.0005	0.0005
2	20	0.0005	0.0005
3	30	0.0005	0.0005
4	40	0.0005	0.0005
5	50	0.0005	0.0005
6	60	0.0005	0.0005
7	70	0.0005	0.0005
8	80	0.0005	0.0005
9	90	0.0005	0.0005
10	100	0.0005	0.0005
11	100	0.0011	0.0007
12	100	0.0011	0.0007

Grid impedance angle, ψ_k	30°	50°	70°	85°
Flicker coefficient, $c(\psi_k)$	0.0165	0.0150	0.0120	0.0105
Short-term flicker, Pst	0.0011	0.0010	0.0008	0.0007

2.6. Calculation of $Z_{\max}$

2.6.1. Calculation of Z_{ref}

N/A

2.6.2. Calculation of $Z_{\max}$

N/A

2.6.3. Declaration on the user manual

N/A

-End of test report-

Over voltage category Mains.....	:	☐ OVC I	☐ OVC II	☒ OVC III	☐ OVC IV
Over voltage category PV.....	:	☐ OVC I	☒ OVC II	☐ OVC III	☐ OVC IV
Tested for IT power systems	:	☐ Yes	☒ No		
IT testing, phase-phase voltage (V)	:	N/A			
Class of equipment	:	☒ Class I	☐ Class II		
	:	☐ Class III	☐ Not classified		
Mass of equipment (kg).....	:	--			
Pollution degree	:	☐ PD 1	☒ PD 2(inside)	☒ PD 3(outside)	
IP protection class	:	IP66			

Possible test case verdicts:

- test case does not apply to the test object..... : N/A
- test object does meet the requirement : Pass (P)
- test object does not meet the requirement : Fail (F)

Testing:

Date of receipt of test items See cover page

.....

:

Date(s) of performance of tests : See cover page

General remarks

" The test result presented in this report relate only to the object(s) tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see remark #)" refers to remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

Throughout this report a point is used as the decimal separator.

General product information:

See test report CN24UABX 001

Block diagram:

See test report CN24UABX 001

Model list:

See test report CN24UABX 001

Summary of testing:

Tests performed (name of test and test clause)

<u>Clause(s)</u>	<u>Test(s)</u>	<u>Model(s)</u>
cl. 4.2	Harmonic current measurement	SCH350K-T-EU

Testing location:

All tests as described in Test Case and Measurement Sections were performed at the laboratory described on page 1.

Copy of marking plate:

See test report CN24UABX 001

IEC 61000-3-12:2011+A1			
Clause	Requirement – Test	Result - Remark	Verdict
4	Measurement conditions		P
4.1	The average r.m.s input current shall be measured using the averaging method defined in 4.2.2 for harmonic current.		P
	The manufacture may specify any value of r.m.s. current which is within $\pm 10\%$ of the actual measured value and use it as the reference current.		P
	If the value of the average r.m.s. input current found by measurement during these emission tests, measured according to the terms of this clause , is not less than 90% nor greater than 110% of the value of current specified by manufacture.		P
4.2	Harmonic current measurement		P
4.2.1	The harmonic current limits for equipment as specified apply to the line currents for all types of power connections and load.		P
4.2.2	The measurement of harmonic current shall be performance as follows: - For each harmonic order, measure 1.5s smooth r.m.s. harmonic current in each discrete fourier time winding as defined in IEC 61000-4-7. - For each harmonic order, calculate the arithmetic average of the measured value from the DFT time windows, over the entire test observation period as defined in 4.2.7.		P
4.2.3	The repeatability of the average value for the individual harmonic current over the entire test observation period shall be better than $\pm 5\%$ of the applicable limit.		P
4.2.4	Equipment is operation or is taken out of operation manually or automatically, harmonic currents are not taken into account for the first 10s, or until the equipment is fully in or out of operation.		P
4.2.5	The average value for the individual harmonic currents, taken over the entire test observation period shall be less than or equal to the applicable limits in table 2 to 5.		P
5	Requirements and limits for equipment		P
5.1	Only symmetrical control methods are allowed under normal operation conditions.		P

IEC 61000-3-12:2011+A1			
Clause	Requirement – Test	Result - Remark	Verdict
5.2	The limits given apply to 230/240V, 50Hz systems, The limits for the other systems will be added in a future edition of this standard.		P
6	Product documentation		P
7	Test and simulation conditions		P
7.1	Conformity with this standard may be determined by either of the two methods as follows: a) Direct measurement (see 7.2) b) Calculation by validated simulation (see 7.3)		P
7.2	The requirements for the measurement instrumentation are given in IEC 61000-4-7.		P
7.3	Requirements for simulation		P
7.4	General conditions for test and simulation		P
Annex A	Type test conditions		P
Annex B	Illustration of limits for harmonic currents		P
Annex C	Equipment not complying with the requirements and limit of this standard		N/A
Annex D	Information on the PWHD factor		P
Bibliography	--		N/A

TABLE: Harmonics, Inter-harmonics, and Higher frequency harmonics (linter & lhigher)											P	
Harmonics												
P/Pn [%]	0	10	20	30	40	50	60	70	80	90	100	Limit
Order No.	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
THC	0.006	0.757	0.639	0.470	0.552	0.651	0.711	0.773	0.826	0.859	0.872	--
1	0.132	10.37 0	20.35 3	30.35 6	40.35 4	50.34 6	60.33 6	70.33 0	80.33 6	90.32 2	100.1 68	--
2	0.000	0.005	0.014	0.015	0.014	0.014	0.014	0.013	0.014	0.015	0.023	--
3	0.000	0.022	0.015	0.017	0.019	0.019	0.019	0.017	0.017	0.019	0.020	--
4	0.000	0.007	0.013	0.012	0.015	0.018	0.018	0.017	0.016	0.017	0.025	--
5	0.003	0.483	0.286	0.244	0.385	0.452	0.472	0.479	0.479	0.463	0.429	--
6	0.000	0.004	0.005	0.006	0.005	0.006	0.006	0.006	0.006	0.006	0.008	--
7	0.003	0.176	0.218	0.053	0.246	0.378	0.442	0.488	0.513	0.530	0.531	--
8	0.000	0.006	0.006	0.007	0.004	0.005	0.005	0.006	0.006	0.007	0.007	--
9	0.000	0.019	0.019	0.021	0.020	0.019	0.019	0.018	0.022	0.021	0.023	--
10	0.000	0.006	0.007	0.007	0.005	0.006	0.006	0.006	0.007	0.007	0.007	--
11	0.002	0.189	0.096	0.117	0.052	0.106	0.192	0.273	0.323	0.353	0.378	--
12	0.000	0.005	0.006	0.006	0.005	0.006	0.006	0.006	0.006	0.007	0.007	--
13	0.002	0.100	0.242	0.101	0.095	0.076	0.081	0.103	0.140	0.168	0.199	--
14	0.000	0.006	0.008	0.006	0.006	0.006	0.006	0.006	0.007	0.008	0.009	--
15	0.000	0.021	0.016	0.017	0.023	0.021	0.022	0.021	0.020	0.023	0.023	--
16	0.000	0.008	0.008	0.006	0.005	0.006	0.007	0.007	0.007	0.008	0.008	--
17	0.002	0.268	0.162	0.127	0.156	0.092	0.114	0.121	0.118	0.120	0.127	--
18	0.000	0.007	0.008	0.007	0.006	0.007	0.008	0.008	0.008	0.009	0.009	--
19	0.002	0.213	0.086	0.146	0.117	0.072	0.053	0.091	0.119	0.131	0.136	--
20	0.000	0.007	0.010	0.009	0.005	0.006	0.007	0.007	0.008	0.008	0.008	--
21	0.000	0.023	0.028	0.024	0.027	0.027	0.025	0.026	0.024	0.027	0.028	--
22	0.000	0.009	0.008	0.007	0.005	0.006	0.007	0.006	0.007	0.008	0.007	--
23	0.001	0.200	0.236	0.021	0.087	0.118	0.064	0.058	0.113	0.137	0.145	--
24	0.000	0.007	0.008	0.007	0.005	0.006	0.007	0.007	0.007	0.008	0.008	--
25	0.001	0.224	0.159	0.083	0.041	0.087	0.062	0.051	0.089	0.111	0.119	--
26	0.000	0.008	0.008	0.008	0.004	0.006	0.006	0.006	0.006	0.007	0.006	--
27	0.000	0.032	0.033	0.027	0.029	0.028	0.023	0.028	0.029	0.032	0.028	--
28	0.000	0.007	0.008	0.009	0.004	0.006	0.006	0.006	0.006	0.007	0.007	--
29	0.001	0.138	0.087	0.198	0.087	0.092	0.071	0.060	0.084	0.112	0.126	--
30	0.000	0.007	0.007	0.006	0.003	0.005	0.006	0.006	0.006	0.006	0.006	--
31	0.001	0.127	0.073	0.178	0.103	0.071	0.071	0.063	0.035	0.064	0.095	--
32	0.000	0.007	0.009	0.007	0.004	0.005	0.005	0.005	0.006	0.006	0.006	--
33	0.000	0.039	0.031	0.023	0.025	0.025	0.022	0.025	0.023	0.027	0.025	--
34	0.000	0.007	0.007	0.006	0.004	0.004	0.005	0.004	0.005	0.005	0.005	--
35	0.000	0.101	0.207	0.091	0.096	0.055	0.065	0.058	0.028	0.051	0.084	--
36	0.000	0.006	0.005	0.005	0.003	0.004	0.005	0.005	0.005	0.005	0.005	--
37	0.000	0.064	0.186	0.084	0.069	0.055	0.043	0.035	0.053	0.056	0.063	--
38	0.000	0.007	0.006	0.007	0.003	0.003	0.004	0.004	0.004	0.004	0.004	--
39	0.000	0.031	0.027	0.021	0.018	0.018	0.019	0.016	0.018	0.020	0.024	--
40	0.000	0.005	0.005	0.006	0.003	0.003	0.004	0.004	0.004	0.004	0.004	--
41	0.000	0.026	0.042	0.108	0.035	0.036	0.036	0.028	0.039	0.039	0.047	--

42	0.000	0.004	0.004	0.004	0.002	0.003	0.004	0.004	0.004	0.004	0.003	--
43	0.000	0.084	0.041	0.099	0.017	0.021	0.024	0.042	0.026	0.022	0.033	--
44	0.000	0.004	0.005	0.005	0.002	0.003	0.003	0.003	0.003	0.003	0.003	--
45	0.000	0.017	0.018	0.014	0.016	0.017	0.015	0.010	0.014	0.018	0.017	--
46	0.000	0.006	0.004	0.005	0.003	0.003	0.003	0.003	0.003	0.003	0.003	--
47	0.000	0.041	0.059	0.036	0.024	0.019	0.018	0.030	0.024	0.017	0.026	--
48	0.000	0.003	0.003	0.003	0.002	0.003	0.003	0.003	0.003	0.003	0.003	--
49	0.000	0.029	0.051	0.019	0.032	0.015	0.021	0.021	0.019	0.027	0.035	--
50	0.000	0.005	0.003	0.005	0.002	0.003	0.003	0.003	0.003	0.003	0.003	--
Inter-harmonics												
P/Pn [%]	0	10	20	30	40	50	60	70	80	90	100	Limit
f [Hz]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
75	0.000 1	0.024 1	0.029 2	0.036 2	0.034 7	0.039 3	0.041 9	0.042 5	0.043 7	0.047 0	0.058 2	--
125	0.000 1	0.025 8	0.030 9	0.036 9	0.032 8	0.038 3	0.039 1	0.037 8	0.039 1	0.040 5	0.047 6	--
175	0.000 1	0.028 1	0.034 2	0.040 8	0.037 6	0.041 9	0.044 0	0.041 6	0.041 7	0.043 5	0.047 2	--
225	0.000 1	0.027 9	0.035 0	0.040 7	0.037 2	0.044 5	0.045 1	0.043 4	0.042 6	0.044 6	0.047 0	--
275	0.000 1	0.027 5	0.034 9	0.041 3	0.037 6	0.043 1	0.046 1	0.044 9	0.045 0	0.045 9	0.049 0	--
325	0.000 1	0.027 3	0.034 2	0.040 5	0.036 9	0.042 7	0.043 8	0.044 5	0.045 1	0.046 5	0.047 7	--
375	0.000 1	0.027 8	0.034 3	0.037 9	0.035 9	0.042 5	0.044 2	0.042 7	0.045 0	0.047 3	0.048 1	--
425	0.000 1	0.027 8	0.033 6	0.036 9	0.034 9	0.042 6	0.042 4	0.042 1	0.042 6	0.046 4	0.047 4	--
475	0.000 1	0.027 8	0.033 2	0.035 9	0.034 0	0.041 4	0.042 3	0.041 9	0.043 1	0.045 7	0.047 8	--
525	0.000 1	0.027 3	0.032 6	0.034 7	0.033 4	0.040 0	0.041 7	0.042 4	0.043 1	0.046 5	0.048 3	--
575	0.000 1	0.026 7	0.031 5	0.033 9	0.032 3	0.039 0	0.040 8	0.041 9	0.042 9	0.047 4	0.049 5	--
625	0.000 1	0.027 6	0.032 0	0.034 0	0.030 4	0.037 1	0.038 6	0.040 3	0.043 4	0.046 0	0.049 2	--
675	0.000 1	0.026 8	0.031 1	0.031 3	0.029 7	0.036 1	0.038 3	0.039 3	0.041 8	0.047 0	0.048 8	--
725	0.000 1	0.026 9	0.031 0	0.030 7	0.028 7	0.034 0	0.036 5	0.038 4	0.041 2	0.045 7	0.048 5	--
775	0.000 1	0.026 7	0.029 5	0.029 2	0.027 2	0.032 9	0.034 7	0.037 0	0.039 3	0.044 0	0.047 0	--
825	0.000 1	0.026 7	0.029 6	0.029 1	0.025 4	0.030 7	0.033 3	0.035 4	0.038 5	0.042 5	0.045 9	--
875	0.000 1	0.025 3	0.028 6	0.028 8	0.023 8	0.028 8	0.030 3	0.032 5	0.036 1	0.040 7	0.044 0	--
925	0.000 1	0.025 0	0.027 8	0.027 2	0.022 4	0.026 9	0.029 2	0.030 5	0.033 5	0.038 2	0.041 7	--
975	0.000 1	0.024 1	0.027 0	0.026 7	0.021 6	0.025 7	0.027 2	0.028 7	0.031 9	0.036 2	0.038 7	--
1025	0.000 1	0.023 8	0.026 3	0.026 3	0.019 8	0.023 9	0.025 8	0.027 0	0.029 7	0.033 2	0.035 6	--

1075	0.000 1	0.022 7	0.024 8	0.024 0	0.018 3	0.022 2	0.023 9	0.025 1	0.027 7	0.030 4	0.032 6	--
1125	0.000 1	0.022 1	0.024 6	0.023 4	0.017 6	0.020 9	0.022 3	0.023 5	0.025 7	0.028 6	0.030 5	--
1175	0.000 1	0.021 0	0.022 8	0.022 4	0.016 1	0.019 3	0.020 7	0.021 5	0.023 2	0.025 9	0.027 9	--
1225	0.000 1	0.020 5	0.021 8	0.021 4	0.015 4	0.018 0	0.019 3	0.020 2	0.021 5	0.024 1	0.025 6	--
1275	0.000 1	0.019 8	0.020 7	0.020 0	0.014 4	0.017 2	0.018 1	0.018 7	0.020 1	0.022 2	0.023 1	--
1325	0.000 1	0.018 6	0.019 7	0.019 6	0.013 8	0.016 0	0.016 7	0.017 5	0.018 7	0.020 9	0.021 4	--
1375	0.000 1	0.018 0	0.019 0	0.017 7	0.012 9	0.014 9	0.015 9	0.016 5	0.017 5	0.019 3	0.019 8	--
1425	0.000 1	0.017 3	0.017 8	0.017 9	0.012 2	0.014 4	0.014 9	0.015 2	0.016 5	0.018 1	0.018 8	--
1475	0.000 1	0.017 0	0.017 0	0.016 1	0.011 2	0.013 7	0.014 0	0.014 2	0.015 4	0.016 9	0.017 7	--
1525	0.000 1	0.015 8	0.016 6	0.015 2	0.011 0	0.012 6	0.013 4	0.013 5	0.014 3	0.015 7	0.016 3	--
1575	0.000 1	0.015 1	0.015 3	0.014 7	0.010 6	0.012 2	0.012 7	0.012 7	0.013 4	0.014 7	0.014 9	--
1625	0.000 1	0.014 5	0.015 3	0.013 5	0.009 8	0.011 5	0.011 9	0.012 0	0.012 9	0.014 0	0.014 2	--
1675	0.000 1	0.014 3	0.013 8	0.013 1	0.009 5	0.011 0	0.011 5	0.011 5	0.012 2	0.013 4	0.013 6	--
1725	0.000 1	0.013 3	0.014 1	0.011 5	0.009 1	0.010 6	0.011 0	0.010 9	0.011 6	0.012 6	0.012 7	--
1775	0.000 1	0.013 2	0.013 0	0.012 0	0.009 2	0.010 1	0.010 7	0.010 4	0.010 9	0.011 9	0.012 7	--
1825	0.000 1	0.011 9	0.012 3	0.010 4	0.008 3	0.009 6	0.010 0	0.009 9	0.010 6	0.011 4	0.011 6	--
1875	0.000 1	0.011 8	0.011 8	0.009 7	0.008 0	0.009 0	0.009 4	0.009 4	0.009 8	0.010 7	0.010 9	--
1925	0.000 1	0.011 5	0.010 8	0.009 6	0.007 5	0.008 8	0.009 1	0.009 0	0.009 5	0.010 4	0.010 5	--
1975	0.000 1	0.011 4	0.013 6	0.009 1	0.008 4	0.008 7	0.009 1	0.009 2	0.009 2	0.010 2	0.010 6	--

Higher frequency harmonics												
P/Pn [%]	0	10	20	30	40	50	60	70	80	90	100	Limit
f [kHz]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
2.1	0.000 3	0.091 8	0.063 8	0.148 4	0.042 4	0.046 6	0.046 8	0.054 2	0.051 7	0.051 0	0.061 6	--
2.3	0.000 3	0.049 3	0.063 9	0.043 9	0.032 4	0.031 0	0.029 3	0.036 1	0.032 7	0.031 2	0.037 6	--
2.5	0.000 3	0.036 8	0.055 2	0.029 7	0.037 8	0.025 7	0.029 5	0.027 2	0.027 9	0.037 0	0.041 5	--
2.7	0.000 4	0.078 7	0.028 9	0.048 5	0.056 8	0.023 4	0.024 5	0.025 7	0.029 9	0.029 4	0.034 9	--
2.9	0.000 5	0.026 4	0.030 2	0.030 5	0.028 8	0.018 2	0.018 2	0.017 5	0.022 8	0.018 5	0.017 7	--

Higher frequency harmonics												
P/Pn [%]	0	10	20	30	40	50	60	70	80	90	100	Limit
f [kHz]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
3.1	0.000 4	0.022 3	0.016 5	0.018 8	0.013 1	0.023 3	0.014 8	0.019 2	0.012 8	0.016 9	0.020 7	--
3.3	0.000 1	0.017 5	0.007 7	0.009 4	0.007 1	0.013 4	0.011 5	0.015 5	0.014 0	0.012 4	0.013 1	--
3.5	0.000 1	0.005 8	0.005 6	0.005 5	0.004 9	0.004 9	0.005 4	0.007 8	0.009 8	0.008 2	0.007 2	--
3.7	0.000 0	0.008 8	0.005 6	0.006 4	0.006 0	0.005 6	0.005 9	0.006 1	0.009 7	0.017 7	0.018 2	--
3.9	0.000 0	0.014 1	0.012 9	0.012 6	0.011 5	0.010 7	0.009 5	0.007 5	0.007 0	0.014 5	0.011 9	--
4.1	0.000 0	0.011 0	0.010 6	0.010 3	0.009 9	0.009 2	0.008 3	0.006 8	0.005 1	0.007 8	0.012 4	--
4.3	0.000 0	0.005 1	0.004 6	0.004 5	0.004 3	0.004 1	0.003 8	0.003 3	0.002 7	0.003 8	0.007 6	--
4.5	0.000 0	0.002 2	0.001 6	0.001 7	0.001 5	0.001 4	0.001 3	0.001 3	0.001 2	0.001 9	0.003 2	--
4.7	0.000 0	0.001 1	0.000 9	0.001 0	0.000 8	0.000 8	0.000 8	0.000 7	0.000 7	0.000 8	0.001 0	--
4.9	0.000 0	0.000 8	0.000 8	0.000 8	0.000 7	0.000 7	0.000 7	0.000 6	0.000 6	0.000 7	0.000 7	--
5.1	0.000 5	0.000 5	0.000 5	0.000 5	0.000 5	0.000 6	0.000 6	0.000 6	0.000 6	0.000 5	0.044 0	--
5.3	0.002 9	0.002 9	0.002 9	0.002 9	0.003 7	0.003 4	0.003 1	0.003 1	0.003 1	0.003 4	0.041 7	--
5.5	0.002 8	0.002 8	0.002 8	0.002 8	0.003 6	0.003 6	0.003 2	0.003 2	0.003 2	0.003 5	0.038 7	--
5.7	0.002 7	0.002 7	0.002 7	0.002 7	0.003 4	0.003 5	0.003 1	0.003 1	0.003 1	0.003 4	0.035 6	--
5.9	0.003 0	0.003 0	0.003 0	0.003 0	0.003 6	0.003 3	0.003 4	0.003 4	0.003 4	0.003 5	0.032 6	--
6.1	0.005 3	0.005 3	0.005 3	0.005 3	0.005 8	0.004 9	0.003 5	0.003 5	0.003 5	0.004 5	0.030 5	--
6.3	0.005 5	0.005 5	0.005 5	0.005 5	0.005 9	0.005 6	0.003 7	0.003 7	0.003 7	0.007 1	0.027 9	--
6.5	0.003 7	0.003 7	0.003 7	0.003 7	0.004 0	0.003 5	0.003 5	0.003 5	0.003 5	0.007 7	0.025 6	--
6.7	0.002 9	0.002 9	0.002 9	0.002 9	0.003 9	0.003 5	0.004 3	0.004 3	0.004 3	0.003 7	0.023 1	--
6.9	0.003 3	0.003 3	0.003 3	0.003 3	0.003 8	0.004 6	0.004 8	0.004 8	0.004 8	0.004 9	0.021 4	--
7.1	0.003 2	0.003 2	0.003 2	0.003 2	0.004 0	0.005 3	0.003 9	0.003 9	0.003 9	0.004 3	0.019 8	--
7.3	0.005 0	0.005 0	0.005 0	0.005 0	0.006 0	0.005 0	0.005 3	0.005 3	0.005 3	0.004 6	0.018 8	--
7.5	0.007 6	0.007 6	0.007 6	0.007 6	0.009 1	0.005 2	0.004 2	0.004 2	0.004 2	0.005 5	0.017 7	--
7.7	0.005 4	0.005 4	0.005 4	0.005 4	0.005 6	0.004 6	0.004 0	0.004 0	0.004 0	0.005 2	0.016 3	--
7.9	0.003 6	0.003 6	0.003 6	0.003 6	0.005 0	0.003 7	0.004 2	0.004 2	0.004 2	0.004 5	0.014 9	--

Higher frequency harmonics												
P/Pn [%]	0	10	20	30	40	50	60	70	80	90	100	Limit
f [kHz]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]	I [%]
8.1	0.004 1	0.004 1	0.004 1	0.004 1	0.004 8	0.004 2	0.004 0	0.004 0	0.004 0	0.004 7	0.014 2	--
8.3	0.004 0	0.004 0	0.004 0	0.004 0	0.005 3	0.004 3	0.004 4	0.004 4	0.004 4	0.004 5	0.013 6	--
8.5	0.004 4	0.004 4	0.004 4	0.004 4	0.006 0	0.004 3	0.003 6	0.003 6	0.003 6	0.004 2	0.008 2	--
8.7	0.004 7	0.004 7	0.004 7	0.004 7	0.005 5	0.005 3	0.004 8	0.004 8	0.004 8	0.005 9	0.006 3	--
8.9	0.003 1	0.003 1	0.003 1	0.003 1	0.003 9	0.004 1	0.004 3	0.004 3	0.004 3	0.004 7	0.004 4	--
Note(s): Each phase output current > 75A, The harmonic currents are measured per EN 61000-4-7+A1. The worst value of three phases shall be determined.												

Test report end