





<b>Prüfbericht-Nr.:</b> <i>Test Report No.:</i>	<b>50227855 002</b>	<b>Auftrags-Nr.:</b> <i>Order No.:</i>	0244100015	Seite 1 von 10 <i>Page 1 of 10</i>
<b>Kunden-Referenz-Nr.:</b> <i>Client Reference No.:</i>	455841	<b>Auftragsdatum:</b> <i>Order date:</i>	14.01.2019	
<b>Auftraggeber:</b> <i>Client:</i>	Guangzhou Sanjing Electric Co., Ltd., No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong, P.R. China			
<b>Prüfgegenstand:</b> <i>Test item:</i>	Grid-Connected PV Inverter			
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type No.:</i>	R5-10K-T2			
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	China quality test report			
<b>Prüfgrundlage:</b> <i>Test specification:</i>	PVE Test Program of All Quality Matters Award 2018 Version			
<b>Wareneingangsdatum:</b> <i>Date of receipt:</i>	24.12.2018			
<b>Prüfmuster-Nr.:</b> <i>Test sample No.:</i>	A000858416-004			
<b>Prüfzeitraum:</b> <i>Testing period:</i>	08.03.2019 – 08.03.2019			
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	TUV Rheinland (Shanghai) Co., Ltd.			
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	TUV Rheinland (Shanghai) Co., Ltd.			
<b>Prüfergebnis*:</b> <i>Test result*:</i>	Pass			
<b>geprüft von / tested by:</b>		<b>kontrolliert von / reviewed by:</b>		
08.03.2019	Tobias Yang / PE	08.03.2019	Billy Chen / Reviewer	
<b>Datum</b> <i>Date</i>	<b>Name / Stellung</b> <i>Name / Position</i>	<b>Unterschrift</b> <i>Signature</i>	<b>Datum</b> <i>Date</i>	<b>Name / Stellung</b> <i>Name / Position</i>
				
<b>Sonstiges / Other:</b>				
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet
Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
<p><b>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.</b>  <i>This test report only relates to the a. m. 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></p>				

v04



<b>TEST REPORT</b>	
<b>PVE Test Program of All Quality Matters Award 2018 Version</b>	
<b>Report reference no.</b> ..... :	50227855 002
Tested by (name + signature)..... :	See cover page
Approved by (name + signature)..... :	See cover page
Date of issue .....	See cover page
Total number of pages .....	See cover page
<b>Testing Laboratory</b> .....	TÜV Rheinland (Shanghai) Co.,Ltd.
Address .....	B1-13F No. 177. Lane 777 West Guangzhong Road. Zhabei District. Shanghai. 200072 P.R.China
<b>Applicant's name</b> .....	Guangzhou Sanjing Electric Co., Ltd.
Address .....	No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong, P.R. China
<b>Test item description:</b>	
<input type="checkbox"/> PV inverter for home use (5kW)	
<input checked="" type="checkbox"/> PV inverter for home use (10kW)	
<input type="checkbox"/> PV inverter for commercial use (20kW)	
<input type="checkbox"/> PV inverter for commercial use (80kW)	
<input type="checkbox"/> Energy Storage for residential use (Residential / Commercial ≤30kW)	
Manufacturer .....	Same as applicant
Trademark.....	
Model/Type.....	R5-10K-T2
Ratings.....	See marking plate
<b>Test specification:</b>	
Standard.....	PVE Test Program of All Quality Matters Award 2018 Version
Test procedure .....	All Quality Matters Award
Non-standard test method.....	N/A
Test Report Form No. ....	AQMA_2018
Test Report Form(s) Originator.....	TÜV Rheinland Group
Master TRF .....	2019-01
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Rating label:

 广州三晶电气股份有限公司 电话: 400-960-0112    传真: (+86)20-66608589 网址: www.saj-electric.cn    邮箱: service@saj-electric.com		
<b>光伏并网逆变器</b> 型号: R5-10K-T2		
	<b>直流输入</b>	
	输入电压范围                      150V-1100Vdc MPPT电压范围                      160V-950Vdc 最大输入电流 (PV1/PV2)            12.5A/12.5Adc 最大短路电流 (PV1/PV2)            15A/15Adc 每路最大输入组串数量 (PV1/PV2)    1/1	
	<b>交流输出</b>	
	额定输出电压                      3/N/PE 220/380V 额定输出电流                      3*15.2A 最大输出电流                      3*16.7A 额定输出频率                      50Hz 额定输出功率                      10000W 最大输出功率                      11000VA 功率因数                          0.8i...1...0.8c	
	环境温度: -40°C~60°C 保护等级: 一类 过电压等级: II(DC), III(AC) 防护等级: IP65	
		
	NB/T 32004-2013	
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	S/N	
P/C		

Remark:

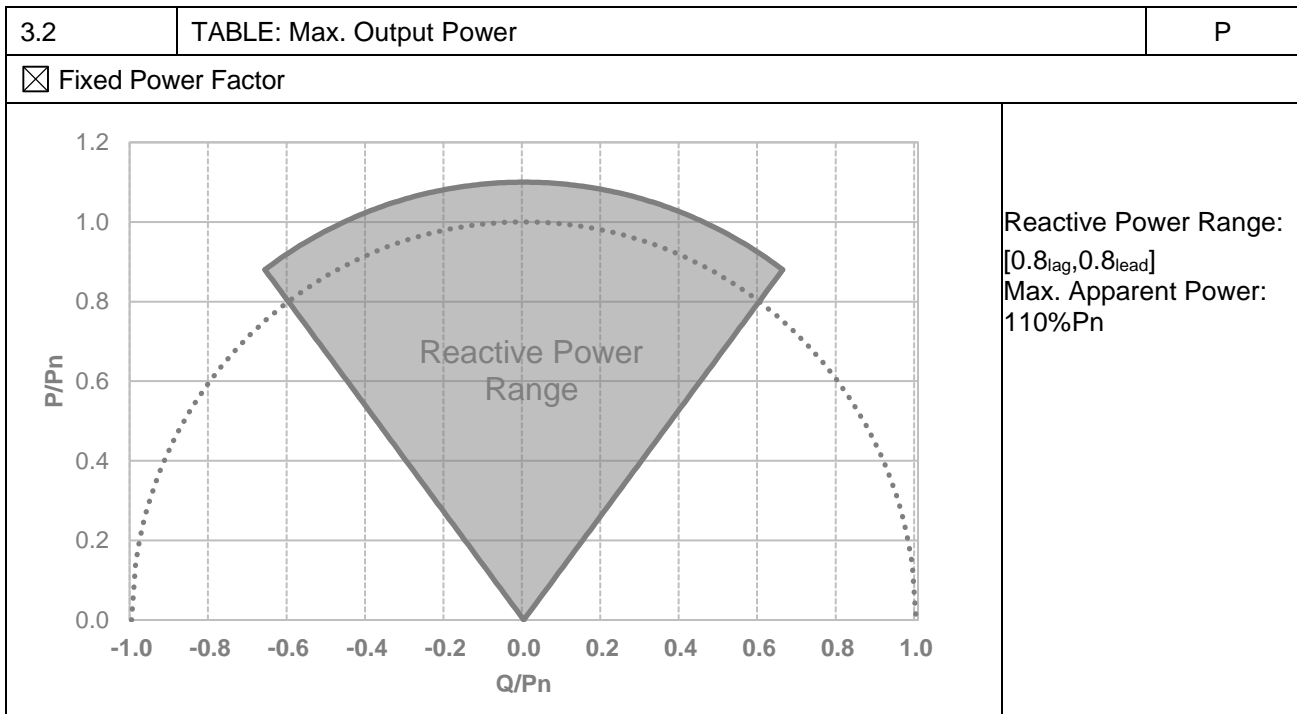
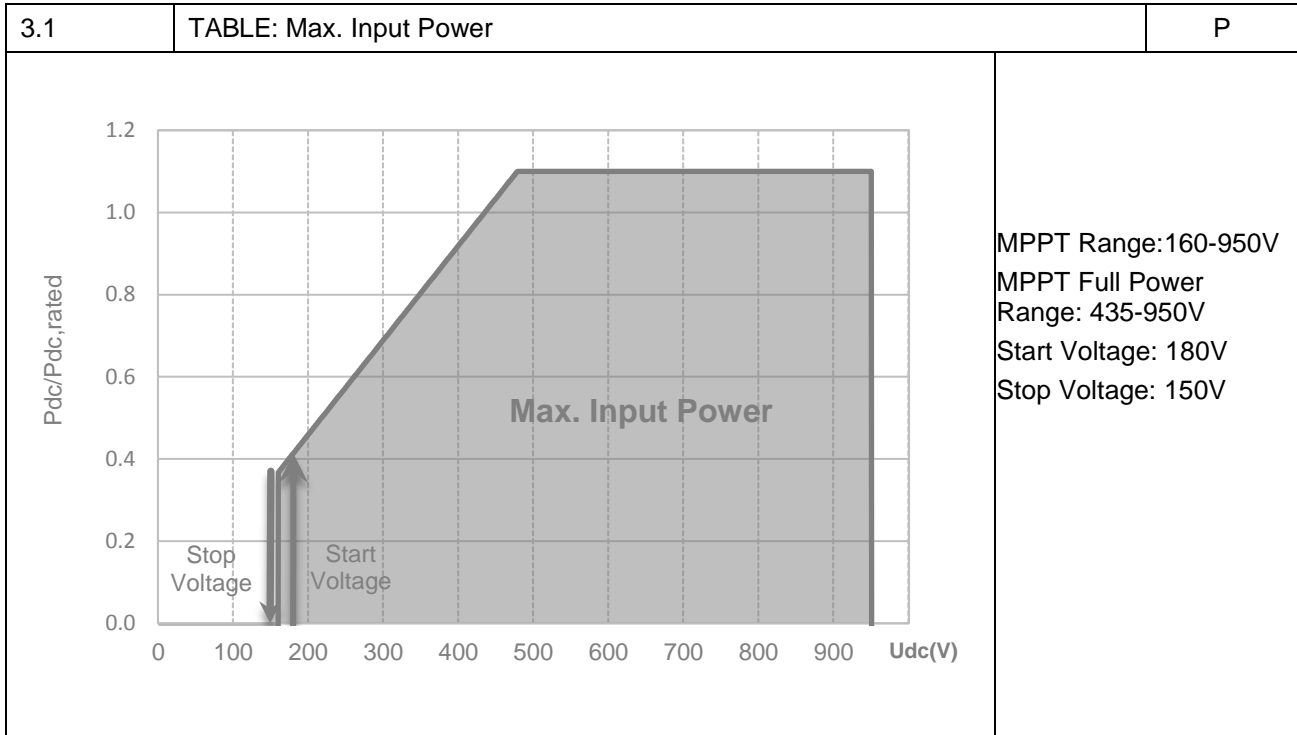
<b>Test item particulars</b>	
Equipment mobility.....	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> stationary <input checked="" type="checkbox"/> fixed <input type="checkbox"/> transportable <input type="checkbox"/> for building-in
Connection to the mains .....	<input type="checkbox"/> pluggable equipment <input type="checkbox"/> direct plug-in <input checked="" type="checkbox"/> permanent connection <input type="checkbox"/> for building-in
Environmental category .....	<input checked="" type="checkbox"/> outdoor <input type="checkbox"/> indoor conditional <input type="checkbox"/> indoor unconditional
Over voltage category Mains.....	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input checked="" type="checkbox"/> OVC III <input type="checkbox"/> OVC IV
Over voltage category PV.....	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV
Mains supply tolerance (%) .....	According to the specified supply range. see model list on the following pages for details.
Tested for power systems .....	TN
IT testing, phase-phase voltage (V).....	N/A
Class of equipment.....	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Mass of equipment (kg) .....	19.0
Pollution degree.....	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 (Internal) <input checked="" type="checkbox"/> PD 3 (External)
IP protection class .....	IP65
<b>Sample:</b>	
Samples received on .....	24.12.2018
TUV reference No.....	A000858416-004
Serial No. ....	R5T2103G1833C00122
<b>Testing:</b>	
Start Date: .....	08.03.2019
End Date: .....	08.03.2019
<b>Possible test case verdicts</b>	
- test case does not apply to the test object .....	N/A
- test object does meet the specification .....	Compliance
- test object does not meet the specification .....	Not Compliance

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Clause	Requirement – Test	Result – Remark	Verdict

<b>1</b>	<b>ENTRY REQUIREMENTS</b>		--
1.1	Compliance	IEC 62109-1, IEC 62109-2 IEC 61000-6-1, IEC 61000-6-3	Compliance
1.2	Grid code	IEC 61727, IEC 62116	Compliance
1.3	Reliability		Compliance
<b>2</b>	<b>GENERAL FACTORS</b>		--
2.1	V <sub>MAX</sub> PV [d.c.V]	1100	Compliance
2.2	I <sub>SC</sub> PV [d.c.A]	15/15	Compliance
2.3	Max. operating input current I <sub>MAX</sub> [d.c.A]	12.5/12.5	Compliance
2.4	PV input operating voltage range[d.c.V]	160-950	Compliance
2.5	Full power MPPT voltage range [d.c.V]	435-950	Compliance
2.6	Backfeed current [a.c. or d.c.A]	0	Compliance
2.7	Battery input voltage range [d.c.V]	N/A	N/A
2.8	Nominal battery voltage [d.c.V]	N/A	N/A
2.9	Max.charge/discharge power [W]	N/A	N/A
2.10	Max.charge/discharge current [d.c.A]	N/A	N/A
2.11	Nominal output voltage [a.c.V]	3/N/PE 220	Compliance
2.12	Operating Voltage Range [a.c.V]	180-280	Compliance
2.13	Nominal Output Frequency [Hz]	50	Compliance
2.14	Operating Frequency Range [Hz]	45-55	Compliance
2.15	Max. operating current [d.c.A]	16.7	Compliance
2.16	Max. output power [W]	11000	Compliance
2.17	Nominal output power [W]	10000	Compliance
2.18	Power factor setting range [ $\lambda$ ]	0.8 lag...0.8lead	Compliance
2.19	Type of inverter	Non-isolated	Compliance
2.20	Type of NS Protection	Integrated	Compliance
2.21	Protective Class	I	Compliance
2.22	Ingress Class (IP)	IP65	Compliance
2.23	Operating Temperature Range [°C]	-40 to 60	Compliance
2.24	Altitude [m]	4000	Compliance
2.25	Size [W*H*D ,mm]	429x418x177	Compliance
2.26	Weight [kg]	19.0	Compliance

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Clause	Requirement – Test	Result – Remark	Verdict
<b>3</b>	<b>MEASUREMENT</b>		--
3.1	Max. Input Power	See appended table for detail.	Compliance
3.2	Max. Output Power	See appended table for detail.	Compliance
3.3	Thermal Stabilities	See appended table for detail.	Compliance
3.4	China Efficiency	See appended table for detail.	Compliance
3.5	Power Quality	See appended table for detail.	Compliance
<b>4</b>	<b>INNOVATION INDICATORS</b>		--
4.1	High Power Density		N/A
4.2	High Altitude	Up to 4000m	Compliance
4.3	Special Environment	-40 to 60°C	Compliance
4.4	Arcing Detector		N/A
4.5	GFCI / RCMU		Compliance
4.6	Anti PID		N/A
4.7	LVRT		N/A
4.8	HVRT		N/A
4.9	IV Curve Tracing		N/A
4.10	Anti Cloud Edge Effect		N/A

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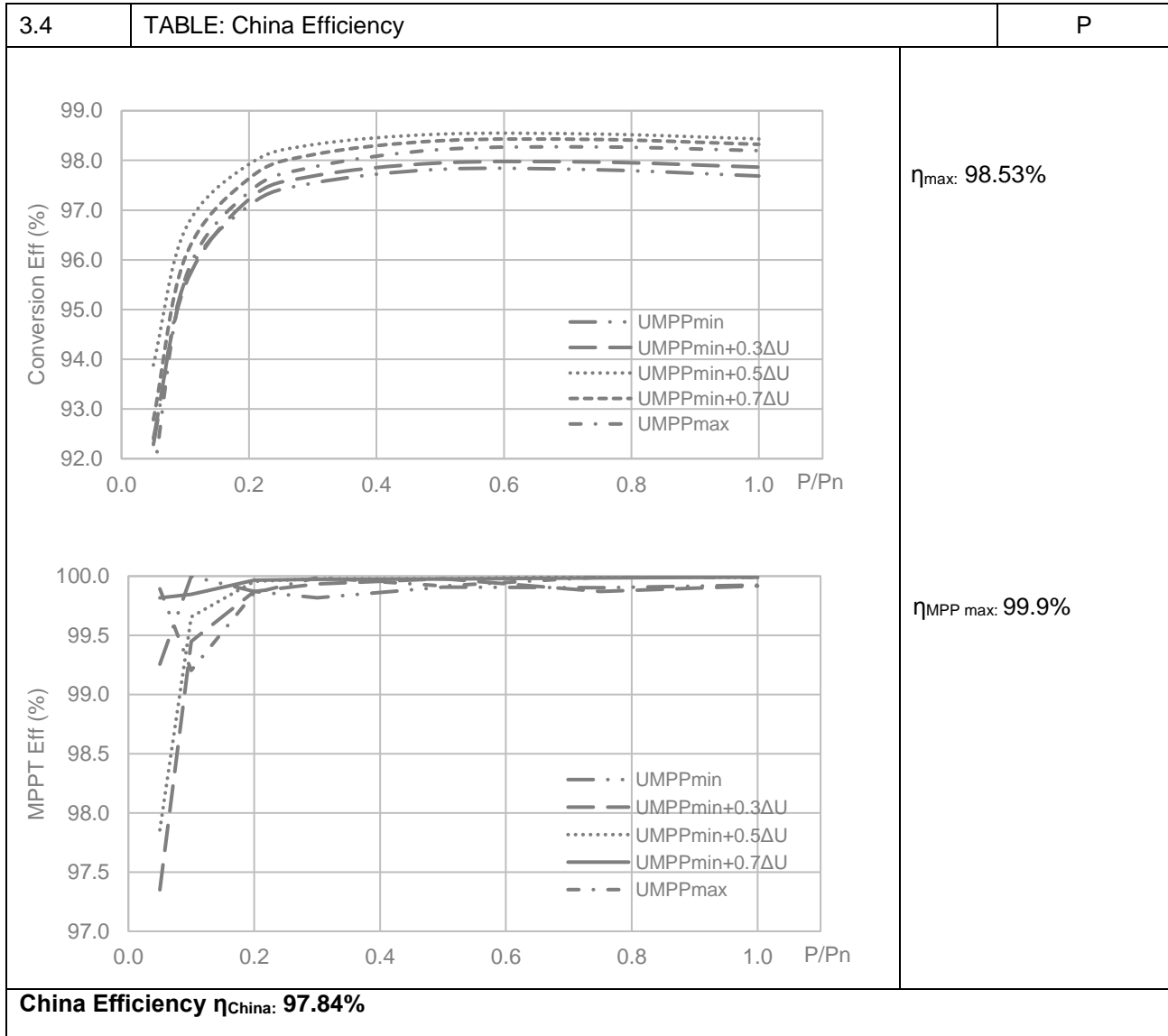


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3.3	TABLE: Thermal Stabilities	P
<p><math>U_{dc} = U_{MPPmin}</math></p> <p>Temp (°C)</p> <p>0.0 0.6 1.1 1.7 2.2 2.8 3.3 3.9 4.4 5.0 5.6 6.1 6.7 7.2 7.8(h)</p> <p>— · · Metal Surface — Internal Ambient - - - External Ambient</p> <p><math>U_{dc} = U_{MPPmin}</math></p> <p>P/P<sub>n</sub></p> <p>25 30 35 40 45 50 55 60</p> <p>Temp (°C)</p> <p>No power reduction</p>		<p>Internal Ambient T<sub>max</sub>: 71.5°C  Metal Surface T<sub>max</sub>: 69.1°C  Max. temp difference between inside and outside ΔT<sub>max</sub>: 11.5°C  Max. Internal temp difference ΔT<sub>max</sub>: 5.0°C</p> <p>Remark: Full power output up to 60°C</p>

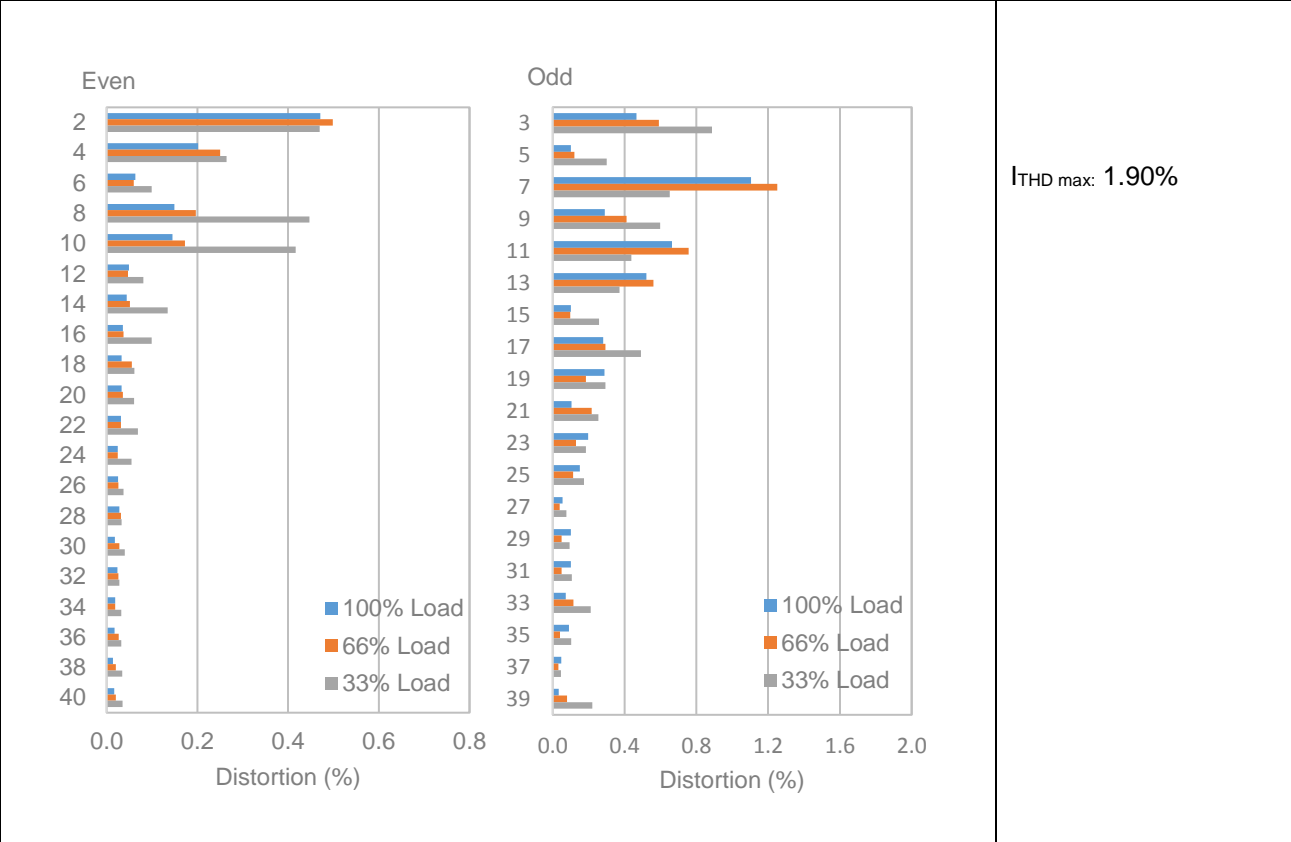


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3.5 TABLE: Power Quality



- End of report -