

Certificate of compliance

Applicant:	Delta Electronics, Inc. 39, Section 2, Huandong Road, Shanhua Township, Tainan Country, 74144, Taiwan
Product:	Grid-tied photovoltaic (PV) inverter
Model:	RPI M50A_xxx* Remark: In the inverter name 'x' can be any number 0 to 9 or letter A to Z or blank
Use in accordance	ce with regulations:

Automatic disconnection device with three-phase mains surveillance in accordance with Engineering Recommendation G59/3 for photovoltaic systems with a three-phase parallel coupling via an inverter in the public mains supply. The automatic disconnection device is an integral part of the aforementioned inverter. This serves as a replacement for the disconnection device with isolating function that can access the distribution network provider at any time.

Applied rules and standards:

Engineering Recommendation G59/3:2013

Recommendation for the Connection of Generating Plant to the Distribution Systems of licensed Distribution Network Operators.

DIN V VDE V 0126-1-1:2006-02 (Functional safety) Automatic disconnection device between a generator and the public low-voltage grid

The RPI M50A_xxx* are rated >16A per phase and >50kW (3 phase). The default values for "Small Power Stations" on the low-voltage grid were verified.

At the time of issue of this certificate the safety concept of an aforementioned representative product corresponds to the valid safety specifications for the specified use in accordance with regulations.

Report number: Certificate number: Date of issue: PVUK140613C04A-G59/3 U14-0663 2014-12-11

Certification body

DAkkS Deutsche Akkreditierungsstelle D-ZE-12024-01-01

Certification body of Bureau Veritas Consumer Products Services Germany GmbH Accredited according to EN 45011 - ISO / IEC Guide 65

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Extract from test report according the Engineering Recommendation G59/3

Nr. PVUK140613C04A

Type Approval and declaration of compliance with the requirements of Engineering Recommendation G59/3.				
Manufacturer / applicant:	Delta Electronics, Inc. 39, Section 2, Huandong Road, Shanhua Township, Tainan Country, 74144, Taiwan			
Generating Unit technology	Grid-tied photovoltaic inverter			
Rated values	RPI M50A_xxx*			
Maximum rated capacity	55,0 kW			
Rated voltage	230V			
Firmware version	DSP: 1.24, 1.30, 1.40, 1.50, 1.60 RED: 1.10, 1.20, 1.30, 1.40 COMM: 1.08, 1.20, 1.50, 1.80, 2.20			
Measurement period:	2014-06-16 to 2014-12-09			

Description of the structure of the power generation unit (Figure 1):

The power generation unit is equipped with a PV and line-side EMC filter. The power generation unit has no galvanic isolation between DC input and AC output. Output switch-off is performed with single-fault tolerance based on two series-connected relays in line and neutral. This enables a safe disconnection of the power generation unit from the network in case of error.



The above stated Generating Units are tested according the requirements in the Engineering Recommendation G59/3. Any modification that affects the stated tests must be named by the manufacturer/supplier of the product to ensure that the product meets all requirements of the Engineering Recommendation G59/3.



Extract from test report according the Engineering Recommendation G59/3

Protection. Voltage tests.										
Phase 1(230V grid setting)										
Function	Set	ting	Trip	test	No trip	test				
	Voltage	Time delay	Voltage	Time delay	Voltage / time	Confirm no trip				
U/V stage 1	200,1V	2,5s	200,1V	2,511s	204,1V / 3,5s	No trip				
U/V stage 2	184V	0,5s	183,8V	0,514s	188V / 2,48s	No trip				
					180V / 0,48s	No trip				
O/V stage 1	262,2V	1,0s	263,3V	1,014s	258.2V 2,0s	No trip				
O/V stage 2	273,7V	0,5s	274,4V	0,516s	269,7V 0,98s	No trip				
					277,7V 0,48s	No trip				

Protection. Voltage tests.									
Phase 2 (230V grid setting)									
Function	Set	ting	Trip	test	No trip	test			
	Voltage	Time delay	Voltage	Time delay	Voltage / time	Confirm no trip			
U/V stage 1	200,1V	2,5s	199,8V	2,509s	204,1V / 3,5s	No trip			
U/V stage 2	184V	0,5s	183,2V	183,2V 0,517s		No trip			
					180V / 0,48s	No trip			
O/V stage 1	262,2V	1,0s	263,6V	1,005s	258.2V 2,0s	No trip			
O/V stage 2	273,7V	0,5s	274,8V	0,513s	269,7V 0,98s	No trip			
					277,7V 0,48s	No trip			



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Nr. PVUK140613C04A

Protection. Voltage tests.										
Phase 3 (230V grid setting)										
Function	Set	ting	Trip	test	No trip	test				
	Voltage	Time delay	Voltage	Time delay	Voltage / time	Confirm no trip				
U/V stage 1	200,1V	2,5s	199,2V	2,509s	204,1V / 3,5s	No trip				
U/V stage 2	184V	0,5s	183,0V	0,532s	188V / 2,48s	No trip				
					180V / 0,48s	No trip				
O/V stage 1	262,2V	1,0s	263,8V	1,019s	258,2V 2,0s	No trip				
O/V stage 2	273,7V	0,5s	274,6V	0,518s	269,7V 0,98s	No trip				
					277,7V 0,48s	No trip				

Note. For Voltage tests the Voltage required to trip is the setting $\pm 3,45V$. The time delay can be measured at a larger deviation than the minimum required to operate the protection. The No trip tests need to be carried out at the setting $\pm 4V$ and for the relevant times as shown in the table above to ensure that the protection will not trip in error.

Protection. Voltage tests.									
Phase 1 (240V grid setting)									
Function	Set	ting	Trip	test	No trip	test			
	Voltage	Time delay	Voltage	Time delay	Voltage / time	Confirm no trip			
U/V stage 1	208,8V	2,5s	208,7V	2,515s	212,8V / 3,5s	No trip			
U/V stage 2	192V	0,5s	192,1V	192,1V 0,507s 196° 2,44		No trip			
					188V / 0,48s	No trip			
O/V stage 1	273,6V	1,0s	273,5V	273,5V 1,042s		No trip			
O/V stage 2	285,6V	0,5s	285,6V	0,512s	281,6V 0,98s	No trip			
					289,6V 0,48s	No trip			



Extract from test report according the Engineering Recommendation G59/3

Nr. PVUK140613C04A

Protection. Voltage tests.									
Phase 2 (240V grid setting)									
Function	Set	ting	Trip	test	No trip	test			
	Voltage	Time delay	Voltage	Time delay	Voltage / time	Confirm no trip			
U/V stage 1	208,8V	2,5s	208,8V	2,519s	212,8V / 3,5s	No trip			
U/V stage 2	192V	0,5s	192,0V	0,509s	196V / 2,48s	No trip			
					188V / 0,48s	No trip			
O/V stage 1	273,6V	1,0s	273,6V	1,056s	269,6V 2,0s	No trip			
O/V stage 2	285,6V	0,5s	285,5V	0,516s	281,6V 0,98s	No trip			
					289,6V 0,48s	No trip			

Protection. Voltage tests.										
Phase 3 (240V grid setting)										
Function	Set	ting	Trip	o test	No trip	test				
	Voltage	Time delay	Voltage	Time delay	Voltage / time	Confirm no trip				
U/V stage 1	208,8V	2,5s	208,7V	2,512s	212,8V / 3,5s	No trip				
U/V stage 2	192V	0,5s	192,1V	0,523s	196V / 2,48s	No trip				
					188V / 0,48s	No trip				
O/V stage 1	273,6V	1,0s	273,6V	1,049s	269,6V 2,0s	No trip				
O/V stage 2	285,6V	0,5s	285,5V	0,511s	281,6V 0,98s	No trip				
					289,6V 0,48s	No trip				
Note. For Voltage	tests the Voltage r	equired to trip is the	he setting ±3,45V	. The time delay of	an be measured a	at a larger				

Note. For Voltage tests the Voltage required to trip is the setting $\pm 3,45V$. The time delay can be measured at a larger deviation than the minimum required to operate the protection. The No trip tests need to be carried out at the setting $\pm 4V$ and for the relevant times as shown in the table above to ensure that the protection will not trip in error.



Extract from test report according the Engineering Recommendation G59/3

Nr. PVUK140613C04A

Protection. Frequency tests.								
Function	Function Setting		Trip	test	No trip	No trip test		
	Frequency	Time delay	Frequency	Time delay	Frequency / time	Confirm no trip		
U/F stage 1	47,5Hz	20s	47,50Hz	20,074s	47,7Hz / 25s	No trip		
U/F stage 2	47Hz	0,5s	47,00Hz	7,00Hz 0,531s		No trip		
					46,8Hz / 0,48s	No trip		
O/F stage 1	51,5Hz	90s	51,50Hz	90,105s	51,3Hz / 95s	No trip		
O/F stage 2	52Hz	0,5s	52,00Hz	0,542s	51,8Hz / 89,98s	No trip		
					52,2Hz / 0,48s	No trip		

Note. For Frequency Trip tests the Frequency required to trip is the setting $\pm 0,1Hz$. In order to measure the time delay a larger deviation than the minimum required to operate the projection can be used. The "No-trip tests" need to be carried out at the setting $\pm 0,2Hz$ and for the relevant times as shown in the table above to ensure that the protection will not trip in error.

Protection. Loss of Mains.							
BS EN 62116							
Balancing load on islanded network	33% of -5% Q Test 22	66% of -5% Q Test 12	100% of -5% P Test 5	33% of +5% Q Test 31	66% of +5% Q Test 21	100% of +5% P Test 10	
Trip time. Ph1 fuse removed	336ms	367ms	172ms	328ms	405ms	186ms	
Trip time. Ph2 fuse removed	336ms	367ms	172ms	328ms	405ms	186ms	
Trip time. Ph3 fuse removed	336ms	367ms	172ms	328ms	405ms	186ms	
Note for technologie the trip occurred in	es which have a s less than 0,5s. Ma	ubstantial shut do aximum shut dowr	wn time this can t n time could there	be added to the 0 fore be up to 1,0	5 seconds in esta seconds for these	ablishing that technologies.	
Indicate additional shut down time included in above results. (Integrated interface switch)				Type of switc Relay Song C 30ms Type of switc Relay Song C 30ms	hing equipment 1 Chuan 511H-P-1A hing equipment 2 Chuan 511H-P-1A	: H-F-C with : H-F-C with	
Note. All relays are	direct coupled an	d open directly by	receiving the isla	nding signal from	the controller.		



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Appendix 13.1 Type Testing a Generating Unit

Extract from test report according the Engineering Recommendation G59/3

Protection. Re-connection timer.									
Test should prove that the recor frequency to within the stage 1 s	Test should prove that the reconnection sequence starts in no less than 20 seconds for restoration of voltage and frequency to within the stage 1 settings of table 10.5.7.1.								
	Voltage (230V grid setting)								
Time delay	/ setting			Measured delay					
209	3			39s					
	Voltage	(240V g	grid setting)						
Time delay	/ setting			Measured delay					
209	3			38s					
Frequency									
Time delay	/ setting			Measured delay					
209		40s							
	230	V grid	setting						
	Checks on no reconnel limits of table 1.	ection v	vhen voltage or f	frequency is brought to	just outside stage 1				
	At 266,2V	ļ	At 196,1V	At 47,4Hz	At 51,6Hz				
Confirmation that the Generating Unit does not re- connect.	No reconnection	No	reconnection	No reconnection	No reconnection				
	240	V grid	setting						
	Checks on no reconnel limits of table 1.	ection v	vhen voltage or f	frequency is brought to	just outside stage 1				
	At 277,6V	ļ	At 204,8V	At 47,4Hz	At 51,6Hz				
Confirmation that the Generating Unit does not re- connect.	No reconnection	No	reconnection	No reconnection	No reconnection				

Protection. Frequency change, Stability test.								
	Start Frequency	Change	End Frequency	Confirm no trip				
Positive Vector Shift	49,5Hz	+9 degrees		No trip				
Negative Vector Shift	50,5Hz	- 9 degrees		No trip				
Positive Frequency drift	49,5Hz	+0,19Hz/sec	51,5Hz	No trip				
Negative Frequency drift	50,5Hz	-0,19Hz/sec	47,5Hz	No trip				



Extract from test report according the Engineering Recommendation G59/3

Generating Unit rating per phase (rpp) International State Sta	Power Quality. Harmonics.								
Generating Unit rating per phase (rpp) 100% of rated output 55kW 100% of rated output 55kW Harmonic (MV) in Amps Measured Value (MV) in Mmps Measured Value (MV) in Mmps Limit in BS EN61000- 3-12 in % 2nd 0,190 0,523 0,133 0,167 8% 8% 3rd 0.078 0,216 0,194 0,244 21,6% NNA 4th 0,132 0,364 0,055 0,069 4% 4% 5th 0,277 0,764 0,324 0,407 10,7% 10,7% 6th 0,219 0,604 0,030 0.038 2,6% 2% 7th 0,360 0,991 0,345 0,433 7,2% 7,2% 8th 0,128 0,354 0,030 0,038 2% 2% 9th 0,073 0,102 0,073 0,092 3,8% N/A 10th 0,074 0,220 0,025 1,3% 1,3% 11th 0,078 0,116 0,030 0,038 N/A			Generating Unit to	ested to BS EN 610	00-3-12				
At 45-55% of rated ouput 25kW 100% of rated output 55kW Harmonic Measured Value (MV) in Amps Measured Value (MV) in Amps Measured Value (MV) in Amps Limit in BS EN61000- 3-12 in % 2nd 0,190 0,523 0,133 0,167 8% 8% 3rd 0,078 0,215 0,144 0,244 21.6% NNA 4th 0,132 0,364 0,055 0,069 4% 4% 5th 0,219 0,604 0,324 0,407 10.7% 10.7% 6th 0,219 0,604 0,030 0,038 2.67% 2.67% 7th 0,365 0,030 0.038 2.8% N/A 10th 0,074 0,203 0,040 0.050 1.8% 1.13% 11th 0,662 1,823 0.291 0.366 2% 2% 14th 0,042 0,116 0,030 0.038 N/A N/A 12th 0,074 0,220 0.025 1,33% 1,3% <th>Genera</th> <th>ting Unit rating per</th> <th>phase (rpp)</th> <th></th> <th></th> <th></th> <th></th>	Genera	ting Unit rating per	phase (rpp)						
Ait 45-55% of rated ouput 25kW 100% of rated output 55kW Initi in BS EN61000- 3-12 in % Harmonic Network Measured Value (MV) in Amps Measured Value (MV) in Maps Measured Value (MV) in % Measured Value (MV) in Maps Linit in BS EN61000- 3-12 in % 2nd 0.190 0.523 0.133 0.167 B% B% 3rd 0.078 0.215 0.194 0.066 4% 4% 4th 0.132 0.364 0.065 0.069 4% 4% 5th 0.277 0.764 0.324 0.433 7.2% 7.2% 7th 0.360 0.991 0.345 0.433 7.2% 7.2% 8th 0.128 0.354 0.030 0.038 2.67% 2.67% 10th 0.078 0.214 0.020 0.025 1.33% 1.6% 11th 0.856 2.360 0.301 0.377 3.1% 1.3% 12th 0.062 1.423 0.291 0.366 2% 2% 14th									
Image: black		At 45-55% o	f rated ouput	100% of ra	ated output				
Harmonic (MV) in Amps Measured Value (MV) in % Measured Value (MV) in % Measured Value (MV) in % Limit in BS EN61000- 3-12 in % 2nd 0.190 0.523 0.133 0.167 8% 8% 3rd 0.078 0.215 0.194 0.244 21.6% N/A 4th 0.132 0.364 0.055 0.069 4% 4% 5th 0.217 0.764 0.324 0.407 10.7% 12.7% 6th 0.219 0.604 0.030 0.038 2.67% 2.67% 71h 0.360 0.991 0.345 0.433 7.2% 7.2% 8th 0.128 0.354 0.030 0.038 2% 2% 10th 0.077 0.102 0.073 0.092 3.8% N/A 11th 0.866 2.360 0.301 0.338 N/A N/A 11th 0.062 1.823 0.291 0.366 2% 2% 14th 0.042 <t< th=""><th></th><th>25</th><th>kW</th><th>55</th><th></th><th></th></t<>		25	kW	55					
Image Image <th< th=""><th>Harmonic</th><th>Measured Value (MV) in Amps</th><th>Measured Value (MV) in %</th><th>Measured Value (MV) in Amps</th><th colspan="2">easured Value Measured Value</th><th colspan="3">Limit in BS EN61000- 3-12 in %</th></th<>	Harmonic	Measured Value (MV) in Amps	Measured Value (MV) in %	Measured Value (MV) in Amps	easured Value Measured Value		Limit in BS EN61000- 3-12 in %		
2nd 0,190 0.523 0,133 0,167 8% 8% 3rd 0,078 0.215 0,194 0.244 21,6% N/A 4th 0,132 0,364 0,055 0,069 4% 4% 6th 0,277 0,764 0,324 0,407 10,7% 10,7% 7th 0,360 0,991 0,345 0,433 7,2% 7,2% 8th 0,128 0,354 0,030 0.038 2% 2% 9th 0,037 0,102 0,073 0.092 3,8% N/A 10th 0.074 0,203 0,040 0,050 1,6% 1,8% 11th 0,856 2,360 0,301 0,377 3,1% 3,1% 12th 0,078 0,214 0,020 0,025 N/A N/A 12th 0,078 0,214 0,020 0,025 N/A N/A 12th 0,078 0,214 0,020 0,025 </th <th></th> <th>()</th> <th>()</th> <th>()</th> <th>()</th> <th>1 phase</th> <th>3 phase</th>		()	()	()	()	1 phase	3 phase		
3rd 0.078 0.215 0.194 0.244 21.6% N/A 4th 0.132 0.364 0.055 0.069 4% 4% 5th 0.277 0.764 0.324 0.407 10.7% 10.7% 6th 0.219 0.604 0.030 0.038 2.67% 2.67% 7th 0.360 0.991 0.345 0.433 7.2% 7.2% 8th 0.128 0.354 0.030 0.038 2.8% 2% 9th 0.037 0.102 0.073 0.092 3.8% N/A 10th 0.074 0.203 0.040 0.050 1.6% 1.6% 11th 0.856 2.360 0.301 0.377 3.1% 3.1% 12th 0.078 0.214 0.020 0.025 1.33% 13th 0.662 1.823 0.291 0.366 2% 2% 14th 0.042 0.116 0.030 0.038 <	2nd	0.190	0.523	0.133	0.167	8%	8%		
4th $0,132$ $0,364$ $0,055$ $0,069$ 4% 4% 5th $0,277$ $0,764$ $0,324$ $0,407$ $10,7\%$ $10,7\%$ 6th $0,219$ $0,604$ $0,030$ $0,038$ $2,67\%$ $2,267\%$ 7th $0,360$ $0,991$ $0,345$ $0,433$ $7,2\%$ $7,2\%$ 8th $0,012$ $0,073$ $0,092$ $3,8\%$ N/A 10th $0,074$ $0,203$ $0,040$ $0,050$ $1,6\%$ $1,6\%$ 11th $0,856$ $2,360$ $0,301$ $0,377$ $3,1\%$ $3,1\%$ 12th $0,078$ $0,214$ $0,020$ $0,025$ $1,33\%$ $1,33\%$ 13th $0,662$ $1,823$ $0,291$ $0,366$ 2% 2% 14th $0,042$ $0,116$ $0,030$ $0,038$ N/A N/A 13th $0,662$ $1,833$ $0,990$ $0,113$ N/A N/A	3rd	0.078	0.215	0.194	0.244	21.6%	N/A		
Sth 0.277 0.764 0.324 0.407 10.7% 10.7% 6th 0.219 0.604 0.030 0.038 2.67% 2.67% 7th 0.360 0.991 0.345 0.433 7.2% 7.2% 8th 0.128 0.354 0.030 0.038 2% 2% 9th 0.037 0.102 0.073 0.092 3.8% N/A 10th 0.074 0.203 0.040 0.050 1.6% 1.6% 11th 0.856 2.360 0.301 0.377 3.1% 1.33% 12th 0.078 0.214 0.020 0.025 1.33% 1.33% 13th 0.662 1.823 0.291 0.366 2% 2% 14th 0.042 0.116 0.030 0.038 N/A N/A 15th 0.018 0.050 0.030 0.038 N/A N/A 16th 0.043 0.117 0.020	4th	0.132	0.364	0.055	0.069	4%	4%		
6th 0.219 0.604 0.030 0.038 2.67% 2.67% 7th 0.360 0.991 0.345 0.433 7.2% 7.2% 8th 0.128 0.354 0.030 0.038 2% 2% 9th 0.037 0.102 0.073 0.092 3.8% N/A 10th 0.074 0.203 0.040 0.050 1.6% 1.6% 11th 0.866 2.380 0.301 0.377 3.1% 3.1% 12th 0.078 0.214 0.020 0.025 1.33% 1.3% 13th 0.662 1.823 0.291 0.366 2% 2% 14th 0.043 0.117 0.020 0.025 N/A N/A 15th 0.018 0.050 0.030 0.038 N/A N/A 17th 0.140 0.385 0.090 0.113 N/A N/A 19th 0.026 0.070 0.010 0	5th	0.277	0.764	0.324	0.407	10.7%	10.7%		
7th 0.360 0.991 0.345 0.433 7.2% 7.2% 8th 0.128 0.354 0.030 0.038 2% 2% 9th 0.037 0.102 0.073 0.092 3,8% N/A 10th 0.074 0.203 0.040 0.050 1.8% 1.6% 11th 0.856 2.360 0.301 0.377 3,1% 3.1% 12th 0.078 0.214 0.020 0.025 1,33% 1.33% 13th 0.662 1.823 0.291 0.366 2% 2% 14th 0.042 0.116 0.030 0.038 N/A N/A 15th 0.018 0.050 0.030 0.038 N/A N/A 17th 0.140 0.385 0.090 0.113 N/A N/A 17th 0.140 0.385 0.090 0.113 N/A N/A 17th 0.179 0.494 0.110 0.0	6th	0.219	0.604	0.030	0.038	2.67%	2.67%		
Bth 0.128 0.354 0.030 0.038 2% 2% 9th 0.037 0.102 0.073 0.992 3.8% N/A 10th 0.074 0.203 0.040 0.050 1.6% 1.6% 11th 0.856 2.360 0.301 0.377 3.1% 3.1% 12th 0.078 0.214 0.020 0.025 1.33% 1.33% 13th 0.662 1.623 0.214 0.020 0.025 1.33% 1/A 14th 0.042 0.116 0.030 0.038 N/A N/A 15th 0.018 0.050 0.030 0.025 N/A N/A 17th 0.140 0.385 0.090 0.113 N/A N/A 18th 0.059 0.161 0.010 0.013 N/A N/A 20th 0.008 0.022 0.010 0.013 N/A N/A 21th 0.008 0.022	7th	0.360	0.991	0.345	0.433	7.2%	7.2%		
9th 0.037 0.102 0.073 0.092 1.8% N/A 10th 0.074 0.203 0.040 0.0550 1.6% 1.6% 11th 0.856 2.360 0.301 0.377 3.1% 3.1% 12th 0.078 0.214 0.020 0.025 1.33% 1.33% 13th 0.662 1.823 0.291 0.366 2% 2% 14th 0.042 0.116 0.030 0.038 N/A N/A 16th 0.043 0.117 0.020 0.025 N/A N/A 17th 0.140 0.385 0.090 0.113 N/A N/A 18th 0.059 0.161 0.010 0.013 N/A N/A 20th 0.026 0.070 0.010 0.013 N/A N/A 21th 0.008 0.022 0.010 0.013 N/A N/A 22th 0.0053 0.146 0.080 <td< td=""><td>8th</td><td>0.128</td><td>0.354</td><td>0.030</td><td>0.038</td><td>2%</td><td>2%</td></td<>	8th	0.128	0.354	0.030	0.038	2%	2%		
Oth O102 O102 <tho< td=""><td>9th</td><td>0.037</td><td>0 102</td><td>0.073</td><td>0.092</td><td>3.8%</td><td>N/A</td></tho<>	9th	0.037	0 102	0.073	0.092	3.8%	N/A		
11th 0,856 2,360 0,301 0,377 3,1%6 3,1%6 12th 0,078 0,214 0,020 0,025 1,33% 1,33% 13th 0,662 1,823 0,291 0,366 2% 2% 14th 0,042 0,116 0,030 0,038 N/A N/A 15th 0,018 0,050 0,030 0,038 N/A N/A 16th 0,043 0,117 0,020 0,025 N/A N/A 17th 0,140 0,385 0,990 0,113 N/A N/A 18th 0,059 0,161 0,010 0,013 N/A N/A 20th 0,026 0,070 0,010 0,013 N/A N/A 21th 0,008 0,022 0,010 0,013 N/A N/A 22th 0,008 0,022 0,010 0,013 N/A N/A 22th 0,007 0,018 0,010 0	10th	0.074	0.203	0.040	0.050	1.6%	1.6%		
12th 0.078 0.214 0.020 0.025 1,33% 1,33% 13th 0.662 1,823 0,291 0,366 2% 2% 14th 0.042 0,116 0,030 0,038 N/A N/A 15th 0,018 0,050 0,030 0,038 N/A N/A 16th 0,043 0,117 0,020 0,025 N/A N/A 17th 0,140 0,385 0,090 0,113 N/A N/A 18th 0,059 0,161 0,010 0,013 N/A N/A 20th 0,026 0,070 0,010 0,013 N/A N/A 21th 0,008 0,022 0,010 0,013 N/A N/A 22th 0,008 0,022 0,010 0,013 N/A N/A 23th 0,048 0,132 0,806 0,101 N/A N/A 24th 0,011 0,033 0,922 0,070	11th	0.856	2,360	0.301	0.377	3.1%	3.1%		
13th 0.662 1,823 0,291 0,366 2% 2% 14th 0,042 0,116 0,030 0,038 N/A N/A 15th 0,043 0,117 0,020 0,025 N/A N/A 16th 0,043 0,117 0,020 0,025 N/A N/A 17th 0,140 0,385 0,990 0,113 N/A N/A 18th 0,059 0,161 0,010 0,013 N/A N/A 19th 0,179 0,494 0,110 0,013 N/A N/A 20th 0,026 0,070 0,010 0,013 N/A N/A 21th 0,008 0,022 0,010 0,013 N/A N/A 22th 0,008 0,022 0,010 0,013 N/A N/A 23th 0,048 0,132 0,680 0,101 N/A N/A 24th 0,011 0,021 0,053 0,146 <td>12th</td> <td>0.078</td> <td>0.214</td> <td>0.020</td> <td>0.025</td> <td>1.33%</td> <td>1.33%</td>	12th	0.078	0.214	0.020	0.025	1.33%	1.33%		
14th 0,042 0,116 0,030 0,038 N/A N/A 15th 0,018 0,050 0,030 0,038 N/A N/A 16th 0,043 0,117 0,020 0,025 N/A N/A 17th 0,140 0,385 0,090 0,113 N/A N/A 18th 0,059 0,161 0,010 0,013 N/A N/A 19th 0,179 0,494 0,110 0,138 N/A N/A 20th 0,026 0,070 0,010 0,013 N/A N/A 21th 0,008 0,022 0,010 0,013 N/A N/A 22th 0,008 0,022 0,010 0,013 N/A N/A 23th 0,048 0,132 0,080 0,101 N/A N/A 24th 0,011 0,031 0,020 0,025 N/A N/A 25th 0,007 0,018 0,010 0,013 </td <td>13th</td> <td>0.662</td> <td>1.823</td> <td>0.291</td> <td>0,366</td> <td>2%</td> <td>2%</td>	13th	0.662	1.823	0.291	0,366	2%	2%		
15th 0,018 0,050 0,030 0,038 N/A N/A 16th 0,013 0,117 0,020 0,025 N/A N/A 17th 0,140 0,385 0,090 0,113 N/A N/A 18th 0,059 0,161 0,010 0,013 N/A N/A 18th 0,026 0,070 0,010 0,013 N/A N/A 20th 0,026 0,070 0,010 0,013 N/A N/A 21th 0,008 0,022 0,010 0,013 N/A N/A 22th 0,008 0,022 0,010 0,013 N/A N/A 23th 0,048 0,132 0,080 0,101 N/A N/A 24th 0,011 0,031 0,020 0,025 N/A N/A 26th 0,007 0,018 0,010 0,013 N/A N/A 27th 0,008 0,022 0,070 0,088 </td <td>14th</td> <td>0.042</td> <td>0.116</td> <td>0.030</td> <td>0.038</td> <td>N/A</td> <td>N/A</td>	14th	0.042	0.116	0.030	0.038	N/A	N/A		
16th 0,043 0,117 0,020 0,025 N/A N/A 17th 0,140 0,385 0,090 0,113 N/A N/A 18th 0,059 0,161 0,010 0,013 N/A N/A 19th 0,179 0,494 0,110 0,138 N/A N/A 20th 0,026 0,070 0,010 0,013 N/A N/A 21th 0,009 0,025 0,010 0,013 N/A N/A 22th 0,008 0,022 0,010 0,013 N/A N/A 23th 0,048 0,132 0,080 0,101 N/A N/A 24th 0,011 0,031 0,020 0,025 N/A N/A 25th 0,007 0,018 0,010 0,013 N/A N/A 26th 0,007 0,018 0,010 0,013 N/A N/A 28th 0,021 0,057 0,010 0,013 </td <td>15th</td> <td>0.018</td> <td>0.050</td> <td>0.030</td> <td>0.038</td> <td>N/A</td> <td>N/A</td>	15th	0.018	0.050	0.030	0.038	N/A	N/A		
10th 1,0th 0,125 0,125 0,125 1,0th 1,0th 17th 0,140 0,385 0,090 0,113 N/A N/A 18th 0,059 0,161 0,010 0,013 N/A N/A 19th 0,179 0,494 0,110 0,138 N/A N/A 20th 0,026 0,070 0,010 0,013 N/A N/A 21th 0,008 0,022 0,010 0,013 N/A N/A 22th 0,008 0,022 0,010 0,013 N/A N/A 23th 0,048 0,132 0,080 0,101 N/A N/A 24th 0,011 0,031 0,020 0,025 N/A N/A 25th 0,007 0,018 0,010 0,013 N/A N/A 26th 0,008 0,022 0,010 0,013 N/A N/A 28th 0,006 0,027 0,010 0,	16th	0.043	0,000	0.020	0.025	N/A	N/A		
18th 0,059 0,161 0,000 0,110 N/A N/A 19th 0,179 0,494 0,110 0,138 N/A N/A 20th 0,026 0,070 0,010 0,013 N/A N/A 21th 0,009 0,025 0,010 0,013 N/A N/A 22th 0,008 0,022 0,010 0,013 N/A N/A 23th 0,048 0,132 0,080 0,101 N/A N/A 24th 0,011 0,031 0,020 0,025 N/A N/A 25th 0,053 0,146 0,080 0,101 N/A N/A 26th 0,007 0,018 0,010 0,013 N/A N/A 28th 0,008 0,022 0,010 0,013 N/A N/A 29th 0,033 0,092 0,070 0,088 N/A N/A 30th 0,021 0,057 0,010 0,013 </td <td>17th</td> <td>0 140</td> <td>0.385</td> <td>0.090</td> <td>0.113</td> <td>N/A</td> <td>N/A</td>	17th	0 140	0.385	0.090	0.113	N/A	N/A		
19th 0,179 0,494 0,110 0,013 N/A N/A 20th 0,026 0,070 0,010 0,013 N/A N/A 21th 0,009 0,025 0,010 0,013 N/A N/A 22th 0,008 0,022 0,010 0,013 N/A N/A 23th 0,048 0,132 0,080 0,101 N/A N/A 24th 0,011 0,031 0,020 0,025 N/A N/A 25th 0,053 0,146 0,080 0,101 N/A N/A 26th 0,007 0,018 0,010 0,013 N/A N/A 26th 0,007 0,018 0,010 0,013 N/A N/A 28th 0,007 0,018 0,010 0,013 N/A N/A 30th 0,021 0,057 0,010 0,013 N/A N/A 31th 0,065 0,179 0,060 0,075 </td <td>18th</td> <td>0.059</td> <td>0,000</td> <td>0,000</td> <td>0.013</td> <td>N/A</td> <td>N/A</td>	18th	0.059	0,000	0,000	0.013	N/A	N/A		
20th 0,170 0,170 0,170 0,170 0,170 1,171 1,171	19th	0,000	0 494	0,010	0.138	N/A	N/A		
21th 0,005 0,010 0,013 N/A N/A 21th 0,008 0,025 0,010 0,013 N/A N/A 22th 0,008 0,022 0,010 0,013 N/A N/A 23th 0,048 0,132 0,080 0,101 N/A N/A 24th 0,011 0,031 0,020 0,025 N/A N/A 25th 0,053 0,146 0,080 0,101 N/A N/A 26th 0,007 0,018 0,010 0,013 N/A N/A 28th 0,008 0,022 0,010 0,013 N/A N/A 28th 0,008 0,022 0,010 0,013 N/A N/A 30th 0,021 0,057 0,010 0,013 N/A N/A 31th 0,024 0,066 0,010 0,013 N/A N/A 32th 0,017 0,048 0,010 0,013 N/A <td>20th</td> <td>0.026</td> <td>0,101</td> <td>0.010</td> <td>0.013</td> <td>N/A</td> <td>N/A</td>	20th	0.026	0,101	0.010	0.013	N/A	N/A		
21th 0,003 0,022 0,010 0,013 N/A N/A 22th 0,008 0,022 0,010 0,013 N/A N/A 23th 0,048 0,132 0,080 0,101 N/A N/A 24th 0,011 0,031 0,020 0,025 N/A N/A 25th 0,053 0,146 0,080 0,101 N/A N/A 26th 0,007 0,018 0,010 0,013 N/A N/A 28th 0,008 0,022 0,010 0,013 N/A N/A 28th 0,008 0,022 0,010 0,013 N/A N/A 29th 0,033 0,092 0,070 0,088 N/A N/A 30th 0,021 0,057 0,010 0,013 N/A N/A 31th 0,017 0,048 0,010 0,013 N/A N/A 32th 0,024 0,066 0,010 0,013 </td <td>21th</td> <td>0.009</td> <td>0.025</td> <td>0.010</td> <td>0.013</td> <td>N/A</td> <td>N/A</td>	21th	0.009	0.025	0.010	0.013	N/A	N/A		
23th 0,048 0,132 0,080 0,101 N/A N/A 23th 0,048 0,132 0,080 0,101 N/A N/A 24th 0,011 0,053 0,146 0,080 0,101 N/A N/A 25th 0,009 0,025 0,010 0,013 N/A N/A 26th 0,007 0,018 0,010 0,013 N/A N/A 28th 0,008 0,022 0,010 0,013 N/A N/A 29th 0,033 0,092 0,070 0,088 N/A N/A 30th 0,021 0,057 0,010 0,013 N/A N/A 31th 0,066 0,010 0,013 N/A N/A 32th 0,024 0,066 0,010 0,013 N/A N/A 33th 0,017 0,048 0,010 0,013 N/A N/A 34th 0,010 0,022 0,050 0,063 </td <td>22th</td> <td>0.008</td> <td>0.022</td> <td>0.010</td> <td>0.013</td> <td>N/A</td> <td>N/A</td>	22th	0.008	0.022	0.010	0.013	N/A	N/A		
24th 0,011 0,031 0,020 0,025 N/A N/A 24th 0,011 0,031 0,020 0,025 N/A N/A 25th 0,053 0,146 0,080 0,101 N/A N/A 26th 0,009 0,025 0,010 0,013 N/A N/A 27th 0,007 0,018 0,010 0,013 N/A N/A 28th 0,008 0,022 0,010 0,013 N/A N/A 29th 0,033 0,092 0,070 0,088 N/A N/A 30th 0,021 0,057 0,010 0,013 N/A N/A 31th 0,065 0,179 0,060 0,075 N/A N/A 32th 0,017 0,048 0,010 0,013 N/A N/A 34th 0,010 0,028 0,010 0,013 N/A N/A 35th 0,073 0,202 0,050 0,063 </td <td>23th</td> <td>0.048</td> <td>0.132</td> <td>0.080</td> <td>0 101</td> <td>N/A</td> <td>N/A</td>	23th	0.048	0.132	0.080	0 101	N/A	N/A		
2.th 0,011 0,001 0,020 0,020 0,020 0,020 25th 0,053 0,146 0,080 0,101 N/A N/A 26th 0,009 0,025 0,010 0,013 N/A N/A 27th 0,007 0,018 0,010 0,013 N/A N/A 28th 0,008 0,022 0,010 0,013 N/A N/A 29th 0,033 0,092 0,070 0,088 N/A N/A 30th 0,021 0,057 0,010 0,013 N/A N/A 31th 0,065 0,179 0,060 0,075 N/A N/A 32th 0,024 0,066 0,010 0,013 N/A N/A 33th 0,017 0,048 0,010 0,013 N/A N/A 34th 0,010 0,022 0,050 0,063 N/A N/A 35th 0,024 0,067 0,010 0,0	20th	0.011	0.031	0.020	0.025	N/A	N/A		
26th 0,000 0,100 0,000 0,013 N/A N/A 26th 0,009 0,025 0,010 0,013 N/A N/A 27th 0,007 0,018 0,010 0,013 N/A N/A 28th 0,008 0,022 0,010 0,013 N/A N/A 29th 0,033 0,092 0,070 0,088 N/A N/A 30th 0,021 0,057 0,010 0,013 N/A N/A 31th 0,065 0,179 0,060 0,075 N/A N/A 32th 0,024 0,066 0,010 0,013 N/A N/A 33th 0,017 0,048 0,010 0,013 N/A N/A 34th 0,010 0,028 0,010 0,013 N/A N/A 35th 0,073 0,202 0,050 0,063 N/A N/A 36th 0,024 0,067 0,010 0,013 </td <td>25th</td> <td>0.053</td> <td>0 146</td> <td>0.080</td> <td>0,020</td> <td>N/A</td> <td>N/A</td>	25th	0.053	0 146	0.080	0,020	N/A	N/A		
20th 0,000 0,010 0,010 0,013 N/A N/A 27th 0,007 0,018 0,010 0,013 N/A N/A 28th 0,008 0,022 0,010 0,013 N/A N/A 29th 0,033 0,092 0,070 0,088 N/A N/A 30th 0,021 0,057 0,010 0,013 N/A N/A 31th 0,065 0,179 0,060 0,075 N/A N/A 32th 0,024 0,066 0,010 0,013 N/A N/A 33th 0,017 0,048 0,010 0,013 N/A N/A 34th 0,010 0,028 0,010 0,013 N/A N/A 35th 0,073 0,202 0,050 0,063 N/A N/A 36th 0,024 0,067 0,010 0,013 N/A N/A 37th 0,035 0,096 0,050 0,063 </td <td>26th</td> <td>0,009</td> <td>0.025</td> <td>0.010</td> <td>0.013</td> <td>N/A</td> <td>N/A</td>	26th	0,009	0.025	0.010	0.013	N/A	N/A		
21th 0,001 0,010 0,010 0,013 N/A N/A 28th 0,008 0,022 0,010 0,013 N/A N/A 29th 0,033 0,092 0,070 0,088 N/A N/A 30th 0,021 0,057 0,010 0,013 N/A N/A 31th 0,065 0,179 0,060 0,075 N/A N/A 32th 0,024 0,066 0,010 0,013 N/A N/A 33th 0,017 0,048 0,010 0,013 N/A N/A 34th 0,010 0,028 0,010 0,013 N/A N/A 35th 0,073 0,202 0,050 0,063 N/A N/A 36th 0,024 0,067 0,010 0,013 N/A N/A 37th 0,035 0,096 0,050 0,063 N/A N/A 38th 0,009 0,025 0,010 0,013 </td <td>27th</td> <td>0.007</td> <td>0.018</td> <td>0.010</td> <td>0.013</td> <td>N/A</td> <td>N/A</td>	27th	0.007	0.018	0.010	0.013	N/A	N/A		
20th 0,000 0,022 0,010 0,010 1014 1014 29th 0,033 0,092 0,070 0,088 N/A N/A 30th 0,021 0,057 0,010 0,013 N/A N/A 31th 0,065 0,179 0,060 0,075 N/A N/A 32th 0,024 0,066 0,010 0,013 N/A N/A 33th 0,017 0,048 0,010 0,013 N/A N/A 34th 0,010 0,028 0,010 0,013 N/A N/A 36th 0,024 0,067 0,010 0,013 N/A N/A 36th 0,024 0,067 0,010 0,013 N/A N/A 37th 0,035 0,096 0,050 0,063 N/A N/A 38th 0,009 0,025 0,010 0,013 N/A N/A 39th 0,009 0,025 0,010 0,013	28th	0.008	0.022	0.010	0.013	N/A	N/A		
20th 0,000 0,001 0,010 0,013 N/A N/A 30th 0,021 0,057 0,010 0,013 N/A N/A 31th 0,065 0,179 0,060 0,075 N/A N/A 32th 0,024 0,066 0,010 0,013 N/A N/A 33th 0,017 0,048 0,010 0,013 N/A N/A 34th 0,010 0,028 0,010 0,013 N/A N/A 35th 0,073 0,202 0,050 0,063 N/A N/A 36th 0,024 0,067 0,010 0,013 N/A N/A 37th 0,035 0,096 0,050 0,063 N/A N/A 38th 0,009 0,025 0,010 0,013 N/A N/A 39th 0,009 0,025 0,010 0,013 N/A N/A 40th 0,013 0,036 0,009 0,011 </td <td>29th</td> <td>0.033</td> <td>0.092</td> <td>0.070</td> <td>0.088</td> <td>N/A</td> <td>N/A</td>	29th	0.033	0.092	0.070	0.088	N/A	N/A		
Ooth 0,021 0,001 0,010 0,010 10/1 10/1 31th 0,065 0,179 0,060 0,075 N/A N/A 32th 0,024 0,066 0,010 0,013 N/A N/A 33th 0,017 0,048 0,010 0,013 N/A N/A 34th 0,010 0,028 0,010 0,013 N/A N/A 35th 0,073 0,202 0,050 0,063 N/A N/A 36th 0,024 0,067 0,010 0,013 N/A N/A 36th 0,024 0,067 0,010 0,013 N/A N/A 37th 0,035 0,096 0,050 0,063 N/A N/A 38th 0,009 0,025 0,010 0,013 N/A N/A 39th 0,013 0,036 0,009 0,011 N/A N/A 40th 0,013 0,036 0,009 0,011	30th	0.021	0.057	0,010	0.013	N/A	N/A		
Orthin 0,000 0,010 0,010 0,013 N/A N/A 32th 0,024 0,066 0,010 0,013 N/A N/A 33th 0,017 0,048 0,010 0,013 N/A N/A 34th 0,010 0,028 0,010 0,013 N/A N/A 35th 0,073 0,202 0,050 0,063 N/A N/A 36th 0,024 0,067 0,010 0,013 N/A N/A 36th 0,025 0,010 0,013 N/A N/A 37th 0,035 0,096 0,050 0,063 N/A N/A 38th 0,009 0,025 0,010 0,013 N/A N/A 39th 0,009 0,025 0,010 0,013 N/A N/A 40th 0,013 0,036 0,009 0,011 N/A N/A THD ₄₀ 3,486% 0,864% 23% 13% 23%<	31th	0.065	0 179	0.060	0.075	N/A	N/A		
Open No Open No <t< td=""><td>32th</td><td>0.024</td><td>0,066</td><td>0,000</td><td>0.013</td><td>N/A</td><td>N/A</td></t<>	32th	0.024	0,066	0,000	0.013	N/A	N/A		
Ooth O,010 O,010 O,010 O,010 O,013 N/A N/A 34th 0,010 0,028 0,010 0,013 N/A N/A 35th 0,073 0,202 0,050 0,063 N/A N/A 36th 0,024 0,067 0,010 0,013 N/A N/A 37th 0,035 0,096 0,050 0,063 N/A N/A 38th 0,009 0,025 0,010 0,013 N/A N/A 39th 0,009 0,025 0,010 0,013 N/A N/A 40th 0,013 0,036 0,009 0,011 N/A N/A THD ₄₀ 3,486% 0,864% 23% 13% 22%	33th	0.017	0.048	0.010	0.013	N/A	N/A		
35th 0,073 0,022 0,050 0,063 N/A N/A 36th 0,024 0,067 0,010 0,013 N/A N/A 37th 0,035 0,096 0,050 0,063 N/A N/A 38th 0,009 0,025 0,010 0,013 N/A N/A 39th 0,009 0,025 0,010 0,013 N/A N/A 40th 0,013 0,036 0,009 0,011 N/A N/A THD ₄₀ 3,486% 0,864% 23% 13% PWHD 3,882% 1,375% 23% 22%	34th	0.010	0.028	0.010	0.013	N/A	N/A		
36th 0,024 0,067 0,010 0,013 N/A N/A 37th 0,035 0,096 0,050 0,063 N/A N/A 38th 0,009 0,025 0,010 0,013 N/A N/A 39th 0,009 0,025 0,010 0,013 N/A N/A 40th 0,013 0,036 0,009 0,011 N/A N/A THD ₄₀ 3,486% 0,864% 23% 13% PWHD 3.882% 1.375% 23% 22%	35th	0.073	0.202	0.050	0.063	Ν/Δ	Ν/Δ		
37th 0,035 0,096 0,050 0,063 N/A N/A 38th 0,009 0,025 0,010 0,013 N/A N/A 39th 0,009 0,025 0,010 0,013 N/A N/A 40th 0,013 0,036 0,009 0,011 N/A N/A THD ₄₀ 3,486% 0,864% 23% 13% PWHD 3,882% 1,375% 23% 22%	36th	0.024	0.067	0.010	0.013	N/A	N/A		
38th 0,009 0,025 0,010 0,013 N/A N/A 39th 0,009 0,025 0,010 0,013 N/A N/A 40th 0,013 0,036 0,009 0,011 N/A N/A THD ₄₀ 3,882% 1,375% 23% 22%	37th	0.035	0,096	0.050	0.063	N/A	N/A		
39th 0,009 0,025 0,010 0,013 N/A N/A 40th 0,013 0,036 0,009 0,011 N/A N/A THD ₄₀ 3,486% 0,864% 23% 13% PWHD 3,882% 1,375% 23% 22%		0,000	0.025	0.010	0.013	N/A	N/A		
40th 0,013 0,036 0,009 0,011 N/A N/A THD ₄₀ 3,486% 0,864% 23% 13% PWHD 3.882% 1.375% 23% 22%	39th	0,000	0.025	0.010	0.013	N/A	N/A		
THD ₄₀ 3,486% 0,864% 23% 13% PWHD 3.882% 1.375% 23% 22%	40th	0.013	0.036	0,009	0.011	N/A	N/A		
PWHD 3.882% 1.375% 23% 22%	THD	3.4	86%	0.8	64%	23%	13%		
	PWHD	3.8	82%	1.3	75%	23%	22%		



Extract from test report according the Engineering Recommendation G59/3

Power Quality. Power factor.								
230V grid setting								
	216,2V	230V	253V	Measured at three voltage levels and at full				
Measured value	0,998	0,999	0,998	±1.5% of the stated level during the test.				
Limit	>0,95	>0,95	>0,95					
240V grid setting								
	225,6V	240V	264V	Measured at three voltage levels and at ful				
Measured value	0,998	0,999	0,998	±1.5% of the stated level during the test.				
Limit	>0,95	>0,95	>0,95					

Power Quality. Voltage fluctuation and Flicker.										
	Starting				Stopping				Running	
	dmax	d	С	d(t)	dmax	d	lc	d(t)	Pst	Plt 2 hours
Measured values at test impedance	0,67%	0,0	5%	0,0%	0,67%	0,0)5%	0,0%	0,83	0,46
Normalised to standard impedance	0,67%	0,05%		0,0%	0,67%	0,0)5%	0,0%	0,83	0,46
Limits set under BS EN 61000-3-11	4%	3,3	3%	3,3% 500ms	4%	3,3	3%	3,3% 500ms	1,0	0,65
Test impedance	R		0,24* 0,4^		Ω			XI	0,15* 0,25	Ω
Standard impedance	R		0,24* 0,4^		Ω			XI	0,15* 0,25^	Ω



Extract from test report according the Engineering Recommendation G59/3

Nr. PVUK140613C04A

Power Quality. DC injection.						
Test level power	10%	55%	100%			
Recorded value phase 1	13mA	19mA	30mA			
As % of rated AC current phase 1	0,02%	0,02%	0,04%			
Limit	0,25%	0,25%	0,25%			
Recorded value phase 2	107mA	22mA	30mA			
As % of rated AC current phase 2	0,13%	0,03%	0,04%			
Limit	0,25%	0,25%	0,25%			
Recorded value phase 3	17mA	37mA	40mA			
As % of rated AC current phase 2	0,02%	0,05%	0,05%			
Limit	0,25%	0,25%	0,25%			

Fault level Contribution.						
For a directly coup	led SSEG	For a Inverter SSEG				
Parameter	Symbol	Value	Time after fault	Volts	Amps	
Peak Short Circuit current	l _p	N/A	20ms	27,04	28,05	
Initial Value of aperiodic current	А	N/A	100ms	27,06	N/A	
Initial symmetrical short-circuit current*	I _k	N/A	250ms	27,06	N/A	
Decaying (aperiodic) component of short circuit current*	i _{DC}	N/A	500ms	27,06	N/A	
Reactance/Resistance Ratio of source*	X/R	N/A	Time to trip	0,074s	In seconds	

For rotating machines and linear piston machines the test should produce a 0s - 2s plot of the short circuit current as seen at the Generating Unit terminals.

* Values for these parameters should be provided where the short circuit duration is sufficiently long to enable interpolation of the plot.

Self Monitoring – Solid state switching.	N/A
It has been verified that in the event of the solid state switching device failing to disconnect the Generating Unit, the voltage on the output side of the switching device is reduced to a value below 50 volts within 0,5 seconds.	
Note. Unit do not provide solid state switching relays. In case the semiconductor bridge is switched off, t on the output drops to 0. In this case the relays on the output will also open.	hen the voltage