



DECLARATION OF EN50438 FOR IRELAND CONSULTATION PAPER CER/06/190

MATERIALS & SAFETY - R&D

TR24451

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APPENDIX 2 Type Test Certification Test Result Sheet

Micro-generator details

MICRO-GENERATOR Type reference: <i>Fronius Primo 4.0-1</i>		
Maximum continuous rating: 4000W		
Manufacturer: <i>Fronius International GmbH</i>	Tel: +43-7242-241-0 Fax: +43-7242-241-224	Address: <i>Guenter Fronius Str 1 4600 Wels-Thalheim, Austria</i>
Technical file reference No.:		

Test house details

Name and address of test house	<i>Fronius R&D Laboratories, Fronius International GmbH, Guenter Fronius Str 1, A-4600 Wels-Thalheim, Austria</i>
Telephone number	+43-7242-241-0
Facsimile number	+43-7242-241-224
E-mail address	<i>pv@fronius.com</i>

POWER QUALITY

Harmonic current emissions (A)								
Maximum permissible harmonic current as per BS EN 61000-3-2								
Harmonic	2 nd	3 rd	5 th	7 th	9 th	11 th	13 th	15 th – 39 th
Limit	1,08	2,3	1,14	0,77	0,4	0,33	0,21	0,15x(15/n)
Test value (max value of Phase1,2,3)	0,09	0,32	0,177	0,115	0,115	0,057	0,01	See TR22183



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Voltage Fluctuations and Flicker				
	Starting	Stopping	Running	
Limit*	4%	4%	$P_{st} = 1.0$	$P_{it} = 0.65$
Test value	0,87	2,14	0,306	0,297

*Maximum permissible voltage fluctuation (expressed as a percentage of nominal voltage at 100% power) and flicker. As per BS EN 61000-3-11.

	Power factor		
Protection Limit	+0.95 lag–0,95 at three voltage levels		
	210 V	230 V	250 V
Test value	0,99	0,99	0,99

Under / Over frequency tests

	Under Frequency		Over Frequency	
Parameter	Frequency (Hz)	Time (s)	Frequency (Hz)	Time (s)
Protection limit	48 Hz	0,5 sec	50,5 Hz	0,5 sec
Actual setting	48,02 Hz	0,46 sec	50,48 Hz	0,46 sec
Trip value	48,01 Hz	0,46 sec	50,48 Hz	0,46 sec

Under / Over voltage tests (single stage protection)

	Under Voltage		Over Voltage	
Parameter	Voltage (V)	Time (s)	Voltage (V)	Time (s)
Protection limit	207 V	0,5 sec	253 V	0,5 sec
Actual setting	209,07 V	0,46 sec	250,47 V	0,46 sec
Trip value	208,47 V	0,46 sec	252,12 V	0,46 sec



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LoM test

Method used	Frequency shift		
Output power level*	10%	55%	100%
Trip setting clearance time	0,5 sec	0,5 sec	0,5 sec
Trip value clearance time	0,48 sec	0,50 sec	0,43 sec

*indicative values are shown for minimum, medium and maximum power levels.

Fault level contribution

Because of electronic current control short circuit current is limited to 18,3A.

COMMENTS

These tests have been carried out with specifications and parameters set to meet the requirements of CER/06/190. It is hereby declared by the manufacturer that all units shipped to Ireland will have identical parameter settings and that these parameters cannot be changed by a user, installer or by any person other than the manufacturer after the setup has been selected.