



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

MATERIALS & SAFETY - R&D

TR24455

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## APPENDIX 2 Type Test Certification Test Result Sheet

### Micro-generator details

|  |  |  |
|--|--|--|
| MICRO-GENERATOR Type reference: <i>Fronius Primo 8.2-1</i> |  |  |
| Maximum continuous rating: 8200W                           |  |  |
| Manufacturer:<br><i>Fronius International GmbH</i>         | Tel: +43-7242-241-0<br>Fax: +43-7242-241-224 | Address:<br><i>Guenter Fronius Str 1<br/>4600 Wels-Thalheim, Austria</i> |
| Technical file reference No.:                              |  |  |

### Test house details

|                                |   |
|--------------------------------|---|
| Name and address of test house | <i>Fronius R&amp;D Laboratories, Fronius International GmbH,<br/>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 <sup>nd</sup> | 3 <sup>rd</sup> | 5 <sup>th</sup> | 7 <sup>th</sup> | 9 <sup>th</sup> | 11 <sup>th</sup> | 13 <sup>th</sup> | 15 <sup>th</sup> – 39 <sup>th</sup> |
| Limit   | 1,08            | 2,3             | 1,14            | 0,77            | 0,4             | 0,33             | 0,21             | 0,15x(15/n)                         |
| Test value<br>(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 37,5A.

## 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.