

**EMF Sector - Measurement of electromagnetic fields of household appliances regarding human exposure**

<b>Product description:</b>	Cylindrical Linear Motor		
<b>Tested models:</b>	ML25300X6 (with sensor SEA9ABZ1)		
<b>HW revision:</b>	N/D	<b>SW/FW revision:</b>	N/A
<b>Test specification:</b>	EN 62233: 2008		
<b>Application:</b>	<input checked="" type="checkbox"/> Full	<input type="checkbox"/> Partial (See par. 5)	
<b>Result:</b>	<input checked="" type="checkbox"/> <b>PASS</b>	<input type="checkbox"/> <b>FAIL</b>	
<b>Manufacturer:</b>	<b>Gimatic S.p.A.</b> Via Enzo Ferrari, 2/4 - 25030 Roncadelle (BS) - Italy Tel. +39.030.2584655 Fax +39.030.2583886 url: <a href="http://www.gimatic.com">http://www.gimatic.com</a>		
<b>Manufacturing Plant:</b>	Same as Manufacturer		
<b>Applicant:</b>	Same as Manufacturer		
<b>Customer:</b>	Same as Manufacturer		
<b>Purchase Order:</b>	ODA-P02683	<b>dated:</b>	2011-07-18
<b>Order Confirmation:</b>	CO 2011-0229-00	<b>dated:</b>	2011-07-25
<b>Samples receiving date:</b>	2011-09-12		
<b>Tests date:</b>	2011-09-14		

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00	2012-01-30	Formal issue
<b>Rev.</b>	<b>Date</b>	<b>Description</b>

*Result of tests and control reported in this documents refers solely to samples as tested and described.**Partial reproductions of this document are absolutely forbidden, except with written authorization by INTEK S.p.A.*

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## 1. PURPOSE

Purpose of this document is to contain results of the tests performed to verify correspondence of test sample, as identified and described in paragraph 3, to requirements of standards listed in paragraph 2.

## 2. APPLICABLE DOCUMENTS

In agreement with the manufacturer were been applied the latest EN available edition.

In the following of this test report, "applicable documents" will be indicated without date and/or edition number.

### 2.1 REFERENCE STANDARDS

The reference standards are the harmonized product standards, or the generic standards, that specify which tests must be performed on the test sample, the applicable levels and limits and, sometimes, the operative condition of the sample during tests. The product standards are always prevalent on the generic standards.

After the analysis of main characteristics of the test sample as, for example, typology, destination of use, main functions implemented, characteristics given by manufacturer, the here below listed harmonized product/generic standards were identified:

Standard	Date	ed.	Title
EN 62233	2008-04	/	Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure

and basic standards listed on chapter 2.2.

### 2.2 BASIC STANDARDS

Basic standard are standards that specify how the tests must be executed, specify the lay-out for testing and specify the instruments that must be used for execution of tests required by product standards.

In this particular case, the product standard contain the test method.

### 2.3 OTHERS DOCUMENTS

Document	Date	Rev.	Title
INTEK 05 04 MP 026 PRE	2009-08-26	01	Measurement methods for electric, magnetic and electromagnetic fields with regard to human exposure

**3. TEST SAMPLE IDENTIFICATION****3.1 DESCRIPTION**

Identification data of test samples are reported in the first page of this document.



Sample identification

*Not available*

Copy of marking plate

Country of manufacturer:	Italy
Type of unit:	<input checked="" type="checkbox"/> Fixed equipment <input type="checkbox"/> Portable equipment <input type="checkbox"/> Panel mounting <input checked="" type="checkbox"/> Prototype / Pre-series <input type="checkbox"/> Series
Serial number:	Not present

**3.1.1 TECHNICAL DATA**

Power source:	Driver
Power supply nominal voltage:	325 Vdc
Nominal power or absorbing current:	Not declared
Internal operating frequencies:	N/D

**3.1.2 CLASSIFICATION**

On the basis of the definition given by the applicable standard the test sample is classified as:	<input type="checkbox"/> Equipment intended for use in residential locations <input checked="" type="checkbox"/> Equipment intended for use in industrial locations
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**3.1.3 ADDITIONAL INFORMATION**

None

**3.2 SAMPLES ORIGIN**

The test samples were furnished by:			
<input checked="" type="checkbox"/> <b>Manufacturer</b>	<input type="checkbox"/> <b>Customer</b>	<input type="checkbox"/> <b>Applicant</b>	<input type="checkbox"/> <b>Other</b>
The beginning sampling was carried out by:			
<input checked="" type="checkbox"/> <b>Manufacturer</b>	<input type="checkbox"/> <b>Customer</b>	<input type="checkbox"/> <b>Applicant</b>	<input type="checkbox"/> <b>Other</b>
<b>Received samples:</b>	1	<b>Tested samples:</b>	1
<b>Selection method:</b>	<input type="checkbox"/> Random taking <input checked="" type="checkbox"/> None		

### 3.3 PORTS DESCRIPTION

ID	Name	Type	Cable Length	Cable Shielded	Comments
01	Enclosure	N/E			Type: <input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Other

**Notes:** Only the ports relevant for tests were identified.

**Caption:**

<b>ID:</b>	Number assigned to tested line
<b>Name:</b>	Name given by manufacturer
<b>Type:</b>	<b>AC</b> = AC Power Port <b>AC Mains</b> = AC Mains Power Port <b>DC</b> = DC Power Port <b>N/E</b> = Non-Electrical <b>I/O</b> = Signal Input or Output Port <b>TP</b> = Telecommunication Ports
<b>Comments:</b>	For instance type of cable used during tests; <b>2Pdc:</b> Two lines (positive and negative) <b>2Pac:</b> Two lines (phase and neutral) <b>3Pdc:</b> Three lines (positive, negative and ground) <b>3Pac:</b> Three lines (phase, neutral and ground) <b>nP:</b> n lines <b>SW:</b> Single wire(s) <b>TW:</b> Twisted pair

## 4. TEST INFORMATION

Unless otherwise specified, during the tests the sample/s was/were been configured following the methods and procedure specified in the reference standard.

### 4.1 CONDITIONS DURING THE TESTS

#### 4.1.1 PERSONNEL PRESENT TO THE TESTS

Test performed by:	<i>Luigi Sala (Intek S.p.A.)</i>
Other people present:	<i>Guerino Rosso (Gimatic S.p.A.)</i>

#### 4.1.2 MODIFICATIONS TO SAMPLES

Test sample was not modified during tests.

#### 4.1.3 ENVIRONMENTAL CONDITIONS

Laboratory environmental conditions are recorded during tests and they are shown on relevant chapters.

#### 4.1.4 ABBREVIATIONS

N/A = Not Applicable  
N/D = Not Declared  
N/C = Not Compliant  
C = Compliant  
TR = Test Report  
EUT = Equipment Under Test

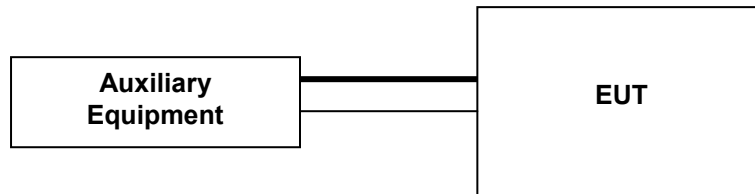
## 4.2 CONFIGURATION

In agreement with the	<input checked="" type="checkbox"/> Manufacturer	during tests the sample was connected to a power supply able to generate voltage and current required for sample operation.
	<input type="checkbox"/> Customer	
	<input type="checkbox"/> Applicant	

**Emission:** the EUT was configured to measure its highest possible radiation level. The test modes selected are according to EUT instruction manual and/or manufacturer information.

Configuration mode	Description	Notes
CM1	Normal conditions	/

Connections of sample are shown on following figure:



Caption:

Power Supply lines
  Signal lines
  Data lines

## 4.2.1 AUXILIARY EQUIPMENT DESCRIPTION



Driver



Metal driving

## 4.3 OPERATIVE CONDITIONS

The Operation mode adopted during the tests in agreement with the

<input checked="" type="checkbox"/> Manufacturer	<input type="checkbox"/> Customer	<input type="checkbox"/> Applicant
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are listed in the following table and identified by "OM" at which has been referred the item "Operation mode" of all paragraphs of the tests result.

Operation mode	Description	Notes
OM1	EUT Working: Active, static position	/



#### 4.4 ACCEPTANCE CRITERIA

Results are shown in percentage form.

Measured values shall be lower than 100 % (reference level for B-field listed in table B.2 of standard).

In according to paragraph 5.6 of EN 62233 the measurement uncertainty has to be added to the result and the sum has to be compared with the limit.

#### 4.5 CRITERIA ADOPTED FOR COMPLIANCE EVALUATION

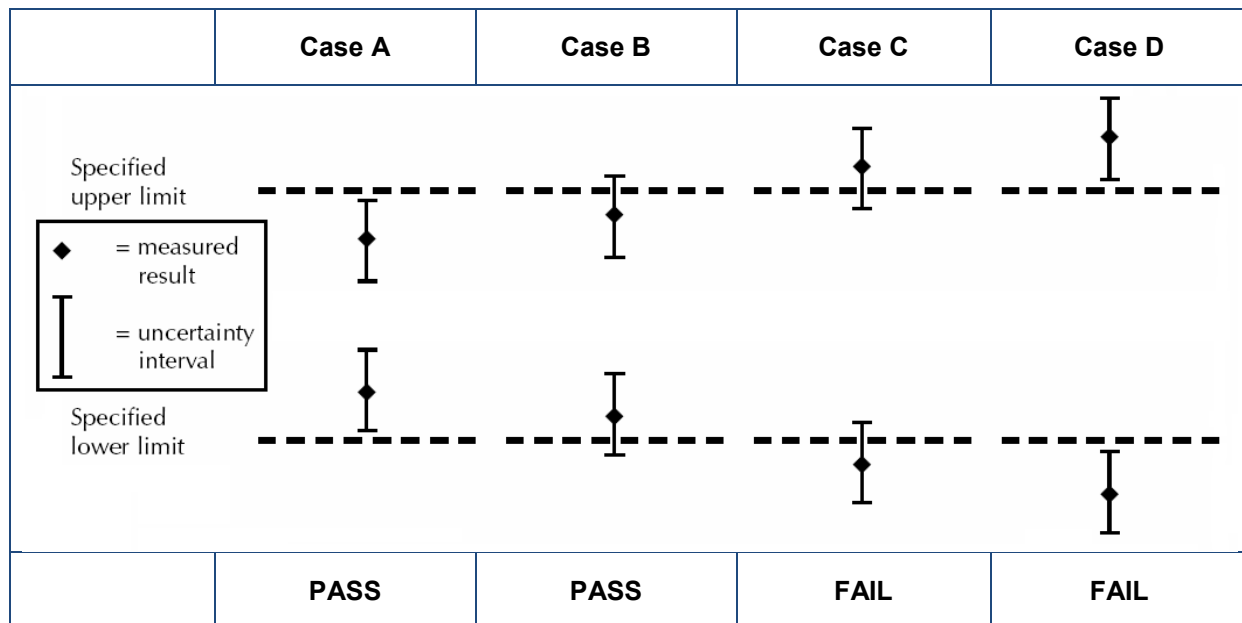
If applicable for compliance evaluation of test results, the Laboratory adopts the following criteria:

- Reference standard specifies uncertainty for measurements:
  - measurements uncertainty permitted;
  - instruments accuracy;
  - application of measurements uncertainty to the measured values;

in this case the measurement complies with the requirement if the measured value is within the limits, or with the correction due to the Laboratory uncertainty.

- Reference standard doesn't specify uncertainty for measurements:

Calculate uncertainty for measurement and compare the measured result with uncertainty band to defined acceptable limit. The measurement complies with the requirement if the probability it being within the limit is at least 50 percent (see following figure):



**5. TESTS RESULT**

§ TR	Test	Reference	Result (#1)	Notes
6.1	Measure of magnetic fields	EN 62233	<b>PASS</b>	/

**Notes:**

#1 - Acceptance criteria, given by applicable documents, as described in paragraph 4.4

**6. TEST PERFORMED****6.1 MEASURE OF MAGNETIC FIELDS**

Test was performed according to requirements of standards listed on chapter 2.

Measuring method (time domain evaluation), described in the paragraph 5.5.2 of the standard:

**EN 62233.**

**6.1.1 TEST SET-UP**

Test site: Fully anechoic room (FAR) - Room N. 26

**6.1.2 TEST PARAMETERS**

Measuring distance: 30 cm

Coupling factor  $a_c(r_1)$ : none

Sensor location: Front and rear

**6.1.3 ENVIRONMENTAL CONDITIONS**

Temperature:  $24\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$     Relative humidity:  $48\text{ } \% \pm 5\text{ } \%$     Atmospheric pressure:  $1000\text{ mBar} \pm 20\text{ mBar}$

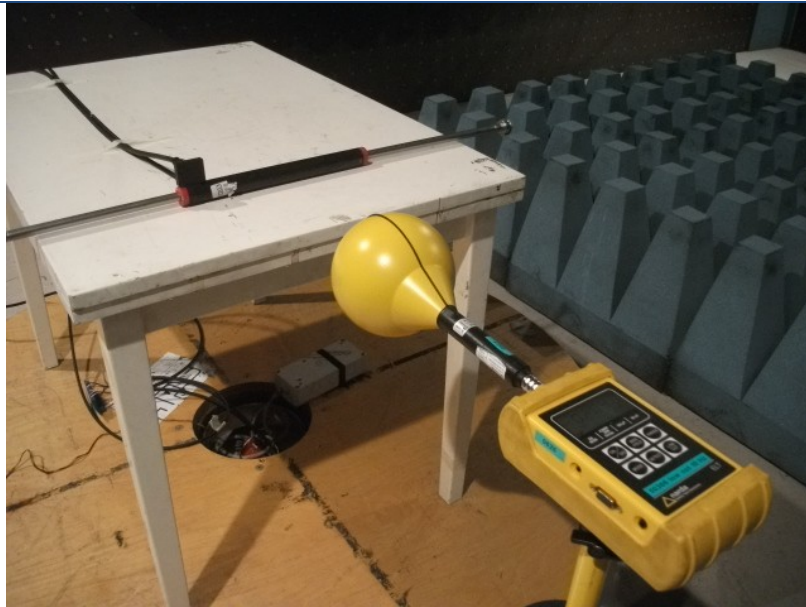
**6.1.4 SUMMARY OF RESULTS**

Ambient noise	Measured value + Measurement uncertainty	Sensor position	Limit	Operating conditions (#1)	Result (#2)	Notes
0,204 %	0,229 % + (uncertainty) = <b>0,263 %</b>	Front	100 %	OM1	<b>PASS</b>	/
0,204 %	0,231 % + (uncertainty) = <b>0,265 %</b>	Rear	100 %	OM1	<b>PASS</b>	/

**Notes:**

#1 - Operating conditions as described in paragraph 4.3.

#2 - Acceptance criteria, given by applicable documents, as described in paragraph 4.4.



Test set-up

**6.1.5 TEST INSTRUMENTATION**

Description	Manufacturer	Model	Intek ID	Last Calibration	Calibration due
Magnetic field probe 100 cm <sup>2</sup>	Narda	2300/90.10	0616 P	2009-10	2012-10
Exposure level tester ELT-400	Narda	2304/03	0617 P	2009-10	2012-10
Anechoic chamber	SIDT Europe	/	0309 P	/	/
Thermometer / hygrometer	Filotechnica Salmoiraghi	1750-2/QM	0222 P	2010-02	2012-02
Barometer	Fischer	/	0224 P	2010-11	2014-11

**6.1.6 MEASUREMENTS UNCERTAINTY**

Values of expanded uncertainty are given with a level of confidence of 95 % ( $k = 2$ ) and with  $n = 9$  degrees of freedom:

-  $U_{LAB} = \pm 15 \%$ .

**7. TEST INSTRUMENTATION**

The list of instruments is given in the relative paragraph of every test.

**8. EUT DOCUMENTATION**

Not available.

**9. ANNEXES LIST**

None.

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*End of test report.*