


**TEST REPORT**

**EN 62233: 2008**

**Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure**

**Report Reference No.** .....: GZES111200843531

**Tested by (name + signature)** .....: Ye Wing 

**Approved by (name + signature)** .....: Gabriel Qian 

**Date of issue** .....: 2011-12-22



**CB Testing Laboratory** .....: SGS-CSTC Standards Technical Services Co., Ltd.  
- E&E Lab Guangzhou

**Address** .....: 198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District, Guangzhou, Guangdong, China 510663

**Testing location / procedure** .....: CBTL     TMP     WMT     SMT     RMT

**Testing location / address** .....: Same as above

**Applicant's name** .....: ANI ANI GROUP SRL

**Address** .....: VIA G. Dei Tintori 2 20853 Biassono (MB)

**Test specification:**

**Standard** .....: EN 62233: 2008

**Test procedure** .....: SGS-CSTC

**Non-standard test method** .....: N/A

**Test Report Form No.** .....: EN 62233\_1

**TRF Originator** .....: SGS-CSTC

**Master TRF** .....: Dated 2009-01

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**Test item description** .....: **UV Pacifier sanitizer**

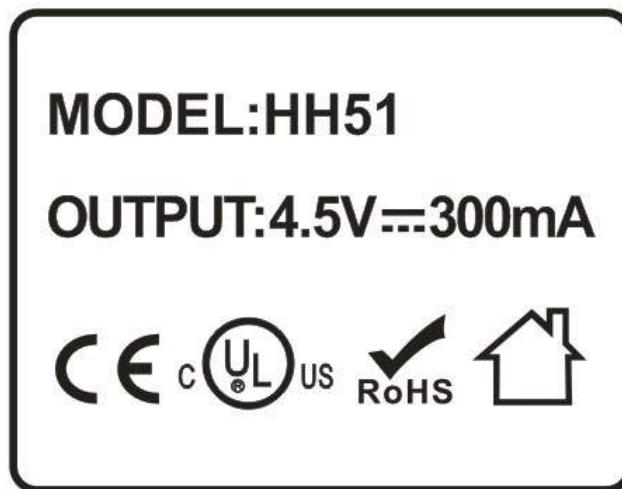
**Trade Mark** : —

**Manufacturer** .....: Same as applicant

**Factory** .....: Same as applicant

**Model/Type reference** .....: HH51

**Ratings** .....: DC 4,5 V

**Copy of marking plate:**

*Remark: the above marking plate is only a draft artwork to show the product ratings and model No.*

**Summary of testing:**

The following standards were carried out:

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The submitted samples fulfilled the requirements of specified standards.

<b>Test item particulars</b> .....	
Classification of installation and use.....	Portable appliance
Supply Connection .....	3 X AAA battery
Possible test case verdicts.....	
- test case does not apply to the test object .....	N/A
- test object does meet the requirement.....	P(Pass)
- test object does not meet the requirement.....	F(Fail)
Testing .....	
Date of receipt of test item .....	2011-12-20
Date (s) of performance of tests .....	2011-12-20 to 2011-12-22
General remarks:	
<p>The test results presented in this report relate only to the object tested.          This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> <p>This document is issued by the company under its General Conditions of Service accessible at <a href="http://www.sgs.com/terms_and_conditions.htm">http://www.sgs.com/terms_and_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.</p> <p>Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.</p> <p>Unless otherwise stated: (a) the results shown in this document refer only to the sample(s) tested and (b) such sample(s) are retained for 12 months. This document cannot be reproduced except in full, without prior approval of the company.</p> <p>"(see enclosure #)" refers to additional information appended to the report.          "(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a comma is used as the decimal separator.</p> <p><b>This test report includes the following additional documents to original TRF:</b></p> <p>Annex I: Photo documents.</p>	

<p><b>General product information:</b></p> <p>UV Pacifier sanitizer for household and indoor use only.</p>
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Cl.	Requirement - Test	Result	Verdict
<b>5</b>	<b>Measuring methods</b>		--
<b>5.1</b>	<b>Electric fields</b> The measurement method is under consideration. If appliances, with their internal transformer or electronic circuit, are working at voltage lower than 1 000 V, they are deemed to comply without testing.		P
<b>5.2</b>	<b>Magnetic fields</b>		P
	<b>Frequency range</b> The frequency range considered is from 10 Hz to 400 kHz .		P
	If it is not feasible to cover the frequency range in one measurement, the weighted results of each measured frequency range shall be added.		N/A
<b>5.3</b>	<b>Measuring distances, sensor locations and operating conditions</b> The <b>measuring distances</b> , sensor locations and operating conditions are specified in Annex A.	0 cm; Around; Appliance is Supplied by 3 X AAA battery	P
<b>5.4</b>	<b>Magnetic field sensor</b> Measurement values of magnetic flux density are averaged over an area of 100 cm <sup>2</sup> in each direction. The reference sensor consists of three mutually perpendicular concentric coils with a measuring area of 100 cm <sup>2</sup> +/- 5 cm <sup>2</sup> to provide isotropic sensitivity. The outside diameter of the reference sensor is not to exceed 13 cm.		P
	For the determination of <b>coupling factors</b> , as specified in Annex C, an isotropic sensor having a measuring area of 3 cm <sup>2</sup> +/-0,3 cm <sup>2</sup> is used.		P
	NOTE The final value of the magnetic flux density is the vector addition of the values measured in each direction. This ensures that the measured value is independent of the direction of the magnetic field.		P
<b>5.5</b>	<b>Measuring procedures for magnetic fields</b>		--
<b>5.5.1</b>	<b>General</b>		--
	The measuring signal shall be evaluated dependent on the frequency. Transient magnetic fields with a duration of less than 200 ms, e.g. during switching events, are disregarded.		P
	If a switching action occurs during the measurements, the measurement has to be repeated. The measuring equipment is to have a maximum noise level of 5 % of the limit value.		P

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	Any measured value below the maximum noise level is disregarded. The background level is to be less than 5 % of the limit value. The response time for the measuring equipment to reach 90 % of the final value is not to exceed 1 s.	Background level: 1,1 %	P
	The magnetic flux density is determined by using an averaging time of 1 s. Shorter sampling times may be used if the source is shown to be constant over a period greater than 1 s for 10 Hz – 400 kHz signals. During the final measurement the sensor should remain stationary.		P
<b>5.5.2</b>	<b>Time domain evaluation</b>		--
	This is the reference method and is used in case of doubt. Independent of the type of the signal, a time domain measurement of the value of the magnetic flux density can be carried out. For fields with several frequency components, the dependency on frequency of the reference levels is taken into account by implementing a transfer function A which is inverse of the reference level expressed as a function of the frequency.		P
	The transfer function is to be established using a first order filter and shall have the characteristics shown in Figure Z1.		P
	<p>NOTE: Logarithmic scales are used for both axes.</p> <p>Figure Z1 - Transfer function</p>		P
	The following sequence is used for the measurements: – perform a separate measurement of each coil signal; – apply a weighting to each signal using the transfer function; – square the weighted signals; – add the squared signals; – average the sum; – obtain the square root of the average.		P
	The result is the weighted r.m.s. value of the magnetic flux density.		P

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	This procedure is shown schematically in Figure Z2.		P
	<p style="text-align: center;">Figure Z2 - Schematic diagram of the reference method</p>		P
	The actual measured value shall be compared directly with the reference level <i>BBRL</i> of the flux density at 50 Hz. With appliances with highly localized fields, this has to be performed after taking the coupling factor <i>ac(r1)</i> given in Annex C into account.		P
	The final weighted result, <i>W</i> , can be derived as follows:		P
	$W_n = \frac{B_{r.m.s.}}{B_{RL}}$		P
	<p>where</p> <p><i>W<sub>n</sub></i> weighted result for one measurement;</p> <p><i>B<sub>r.m.s.</sub></i> r.m.s. value of the magnetic flux density;</p> <p><i>BBRL</i> reference level of the magnetic flux density at <i>f</i>0;</p> <p><i>ac(r1)</i> coupling factor according to Annex C or Table D.3.</p> <p><i>W<sub>nc</sub></i> weighted result for one measurement taking the coupling of the inhomogeneous field into account by applying <i>ac(r1)</i>.</p> <p>The determined weighted result <i>W</i> shall not exceed the value 1</p>		P
5.5.3	<b>Line spectrum evaluation</b>		N/A
5.5.4	<b>Simplified test methods</b>		N/A
5.6	<b>Measurement uncertainty</b>		P
	The maximum overall measurement uncertainty shall not exceed 25 % of the limit. Guidance to assess uncertainty is provided in IEC 61786.		P
	NOTE 1 The total measurement uncertainty can comprise aspects such as sensor position, operating conditions, noise background or the signal exceeding the dynamic range of the measuring instrument.		P
	When the result has to be compared with a limit, the measurement uncertainty shall be implemented as follows:		N/A

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	– to establish whether an appliance produces only fields below the limit, the measurement uncertainty has to be added to the result and the sum has to be compared with the limit;		N/A
	NOTE This applies e.g. for measurements carried out by the manufacturer.		N/A
	– to establish whether an appliance produces fields over the limit, the measurement uncertainty has to be subtracted from the result and the difference has to be compared with the limit.		N/A
<b>5.7</b>	<b>Test report</b>		--
	The test report shall include at least the following items:		P
	Identification of the appliance	HH51	P
	specification of the measuring equipment	Narda ELT-400; Overload limit: 160%, Detection time: 1s	P
	operating mode, measuring positions and measuring distance unless specified in Annex A	0 cm; Around; Appliance is Supplied by 3 X AAA battery	P
	rated voltage and frequency	DC 4,5 V	P
	measuring method	Time domain method	P
	measured maximum value, weighted with the coupling factor if applicable	1,4 %	P
	measurement uncertainty, if the measured result is more than 75 % of the limit.		N/A
<b>6</b>	<b>Evaluation of results</b>		--
	The requirements of this standard are fulfilled: – if the measured values with measurement uncertainty taken into account (see 5.6 ) do not exceed the reference levels, or		P
	– if a measured value exceeds the reference level the coupling factor can be taken into account to show that the basic restrictions are met. For specific apparatus the corresponding coupling factor $a_c(r_1)$ can be determined as described in Annex C, or		N/A
	– if the value still exceeds the reference level when using the coupling factor, it does not necessarily follow that the basic restrictions will be exceeded. It shall be verified, e.g. by calculation methods, whether the basic restrictions are fulfilled or not.		N/A
	<b>Annex A (normative)</b>		--
	<b>Test conditions for the measurement of magnetic flux density</b>		P
<b>A.1</b>	<b>General</b>		--

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	The measurements are carried out under the conditions specified in Table A.1, the appliance being positioned as in normal use.		P
<b>A.1.1</b>	<b>Operating conditions, if not specified in Table A.1:</b> a) Maximum setting. b) The operating condition as specified in the relevant CISPR 14-1 series or without load, if possible.		P
	Manufacturer's specifications regarding short time operation have to be taken into account. The running-in time is not specified but, prior to testing, the appliance is operated for a sufficient period to ensure that the conditions of operation are typical of those during normal use.		N/A
	The appliances shall be operated as in normal use from a supply which provides the rated voltage $\pm 2\%$ and the rated frequency $\pm 2\%$ of the appliance.		N/A
	If a voltage range and/or a frequency range are indicated, then the supply voltage and/or frequency shall be the nominal voltage and/or frequency of the country or region in which the appliance is intended to be used.	DC 4,5 V (3 X AAA battery)	P
	Controls are adjusted to the highest setting. However, pre-set controls are used in the intended position. The measurements are made while the appliance is energized.		N/A
	Tests are carried out at an ambient temperature of $25\text{ }^{\circ}\text{C} \pm 10\text{ }^{\circ}\text{C}$ .		P
<b>A.1.2</b>	<b>Measuring distance, if not specified in Table A.1:</b> a) The appliance used in contact with the relevant parts of the body: 0 cm. b) Other appliances: 30 cm.	0 cm.	P
<b>A.1.3</b>	<b>Sensor location, if not specified in Table A.1:</b> a) Appliance in contact with the relevant parts of the body: toward user (contact side). b) Un-transportable large appliance: front (operating side) and the other sides to which persons can access (see Figure A.1). c) Other appliances: around (see Figure A.2).	around	P
<b>A.2</b>	<b>Operating conditions for specific appliances</b>		--
<b>A.2.1</b>	<b>Multifunction equipment</b> Multifunction equipment, which is subjected simultaneously to different clauses of this standard, shall be tested with each function operated separately, if this can be achieved without modifying the equipment internally.		N/A



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	For equipment for which it is not practical to test with each function operated separately, or where the separation of a particular function would result in the equipment being unable to fulfil its primary function, the equipment shall be operated with the minimum number of functions needed to operate.		N/A
<b>A.2.2</b>	<b>Battery operated equipment</b> If the appliance can be connected to the mains it shall be tested operating in each permitted mode. When operating with power from the battery, the battery shall be fully charged prior to start the test.		N/A
<b>A.2.3</b>	<b>Measuring distance and sensor location</b>		P
	NOTE The measuring distances in Table A.1 have been defined based upon the expected location of the operator during normal operation, to protect against effects on central nervous system tissues in the head and trunk of the body.		P

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	<table border="1"> <thead> <tr> <th>Type of appliance</th> <th>Measuring distance <math>r_1</math> cm</th> <th>Sensor locations</th> <th>Operating conditions</th> <th>Coupling factor <math>a_c(r_1)</math> <math>\sigma = 0,1 \text{ S/m}</math> 8 Hz .. 800 Hz <sup>a</sup></th> </tr> </thead> <tbody> <tr> <td>Appliances not mentioned in the table</td> <td>Operator distance</td> <td>All surfaces</td> <td>As specified in EN 55014-1</td> <td>See Annex C</td> </tr> <tr> <td>Air cleaners</td> <td>30</td> <td>All surfaces</td> <td>Continuously</td> <td>0,17</td> </tr> <tr> <td>Air conditioners</td> <td>30</td> <td>Around</td> <td>Continuously. When cooling lowest temperature setting. When heating highest temperature setting</td> <td>0,18</td> </tr> <tr> <td>Battery chargers (including inductive)</td> <td>30</td> <td>All surfaces</td> <td>Charging a discharged battery having the highest capacity specified by the manufacturer</td> <td>0,15</td> </tr> <tr> <td>Blankets</td> <td>0</td> <td>Top</td> <td>Spread out and laid on a sheet of thermal insulation</td> <td>0,19</td> </tr> <tr> <td>Blenders</td> <td>30</td> <td>Around</td> <td>Continuously, no load</td> <td>0,16</td> </tr> <tr> <td>Citrus presses</td> <td>30</td> <td>Around</td> <td>Continuously, no load</td> <td>0,15</td> </tr> <tr> <td>Clocks</td> <td>30</td> <td>Around</td> <td>Continuously</td> <td>0,15</td> </tr> <tr> <td>Coffee makers</td> <td>30</td> <td>Around</td> <td>As specified in 3.1.9 of EN 60335-2-15</td> <td>0,16</td> </tr> <tr> <td>Coffee mills</td> <td>30</td> <td>All surfaces</td> <td>As specified in 3.1.9.108 of EN 60335-2-14</td> <td>0,15</td> </tr> <tr> <td>Convector heaters</td> <td>30</td> <td>Around</td> <td>With highest output</td> <td>0,20</td> </tr> <tr> <td>Deep fat fryers</td> <td>30</td> <td>Around</td> <td>As specified in 3.1.9 of EN 60335-2-13</td> <td>0,16</td> </tr> <tr> <td>Dental hygiene appliances</td> <td>0</td> <td>All surfaces</td> <td>As specified in 3.1.9 of EN 60335-2-52</td> <td>0,19</td> </tr> <tr> <td>Depilators</td> <td>0</td> <td>Against cutter</td> <td>Continuously, no load</td> <td>0,30</td> </tr> <tr> <td>Dishwashers</td> <td>30</td> <td>Top, front</td> <td>Without dishes in the washing mode and drying mode</td> <td>0,18</td> </tr> <tr> <td>Egg boilers</td> <td>30</td> <td>Around</td> <td>As specified in 3.1.9 of EN 60335-2-15</td> <td>0,15</td> </tr> <tr> <td>Electric and electronic controls for track sets</td> <td>30</td> <td>All surfaces</td> <td>Continuously</td> <td>0,17</td> </tr> <tr> <td>Facial sauna appliances</td> <td>10</td> <td>Top</td> <td>Continuously</td> <td>0,12</td> </tr> <tr> <td>Fans</td> <td>30</td> <td>Front</td> <td>Continuously</td> <td>0,16</td> </tr> <tr> <td>Fan heaters</td> <td>30</td> <td>Front</td> <td>Continuously, highest heat setting</td> <td>0,16</td> </tr> </tbody> </table>	Type of appliance	Measuring distance $r_1$ cm	Sensor locations	Operating conditions	Coupling factor $a_c(r_1)$ $\sigma = 0,1 \text{ S/m}$ 8 Hz .. 800 Hz <sup>a</sup>	Appliances not mentioned in the table	Operator distance	All surfaces	As specified in EN 55014-1	See Annex C	Air cleaners	30	All surfaces	Continuously	0,17	Air conditioners	30	Around	Continuously. When cooling lowest temperature setting. When heating highest temperature setting	0,18	Battery chargers (including inductive)	30	All surfaces	Charging a discharged battery having the highest capacity specified by the manufacturer	0,15	Blankets	0	Top	Spread out and laid on a sheet of thermal insulation	0,19	Blenders	30	Around	Continuously, no load	0,16	Citrus presses	30	Around	Continuously, no load	0,15	Clocks	30	Around	Continuously	0,15	Coffee makers	30	Around	As specified in 3.1.9 of EN 60335-2-15	0,16	Coffee mills	30	All surfaces	As specified in 3.1.9.108 of EN 60335-2-14	0,15	Convector heaters	30	Around	With highest output	0,20	Deep fat fryers	30	Around	As specified in 3.1.9 of EN 60335-2-13	0,16	Dental hygiene appliances	0	All surfaces	As specified in 3.1.9 of EN 60335-2-52	0,19	Depilators	0	Against cutter	Continuously, no load	0,30	Dishwashers	30	Top, front	Without dishes in the washing mode and drying mode	0,18	Egg boilers	30	Around	As specified in 3.1.9 of EN 60335-2-15	0,15	Electric and electronic controls for track sets	30	All surfaces	Continuously	0,17	Facial sauna appliances	10	Top	Continuously	0,12	Fans	30	Front	Continuously	0,16	Fan heaters	30	Front	Continuously, highest heat setting	0,16		
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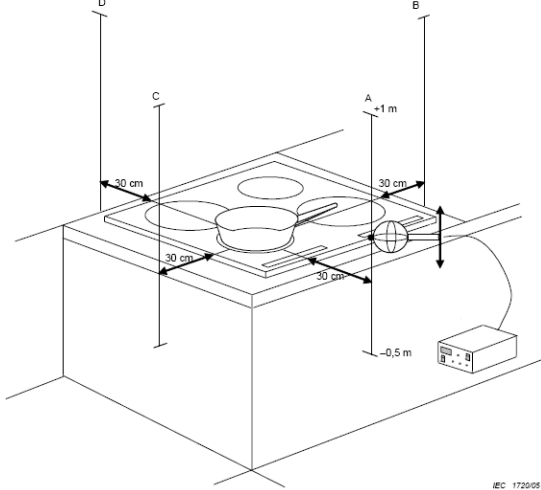
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Cl.	Requirement - Test		Result	Verdict	
	<b>Type of appliance</b>	<b>Measuring distance <math>r_1</math> cm</b>	<b>Sensor locations</b>	<b>Operating conditions</b>	<b>Coupling factor <math>a_c(r_1)</math> <math>\sigma = 0,1 \text{ S/m}</math> 8 Hz .. 800 Hz <sup>a</sup></b>
	Tools, transportable	30	Top and side towards the user	No-load, all settings e.g. speed set to maximum.	0,16
	Tools with heating elements	30	Around, unless the same side is always towards the user	Highest temperature setting. Glue guns with glue stick in working position	0,15
	Tumble dryers	30	Top, front	Drum filled with textile material having a mass in the dry condition of 50 % of the maximum load. The textile material consists of pre-washed double-hemmed cotton sheets approximately 70 cm x 70 cm cm having a mass between 140 g/m <sup>2</sup> and 170 g/m <sup>2</sup> in the dry condition. The material is soaked with water of a mass of 60 % of that of the textile material.	0,18
	Vacuum cleaners, handheld	30	All surfaces	As specified in 3.1.9 of EN 60335-2-2	0,16
	Vacuum cleaners, body sling	0	All surfaces	As specified in 3.1.9 of EN 60335-2-2	0,13
	Vacuum cleaners, others	30	Around	As specified in 3.1.9 of EN 60335-2-2	0,16
	Washing machines and washer dryers	30	Top, front	Without textiles, in the spinning mode at highest speed	0,18
	Water-bed heaters	10	Top	Spread out and laid on a sheet of thermal insulation	0,14
	Water heaters	30	Around	Controls at highest setting, with water flowing, if necessary	0,17
	Whirlpool baths	0	Around	Continuously	0,18
	- inside	30	Around	Continuously	0,20
	- outside				
<sup>a</sup> The worst case coupling factors have been calculated for frequencies up to 800 Hz. For fundamental operating frequencies greater than 800 Hz and lower than 150 kHz, the coupling factor is $a_c(r_1) \times 1,25$ .					
<b>A.3</b>	<b>Test conditions for induction hobs and hotplates</b>				<b>N/A</b>

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Cl.	Requirement - Test	Result	Verdict
A.3.1	<p><b>Measuring distances</b>            For each cooking zone measurements are made along four vertical lines (A, B, C, D) at a distance of 30 cm from the edges of the appliance to the surface of the sensor (see Figure A.3). The measurements are made up to 1 m above the cooking zone and 0,5 m below it. The measurement is not made at the rear of the appliance (line D) if it is intended to be used when placed against a wall.</p>		N/A
A.3.2	<p><b>Operating mode</b>            An enamelled steel cooking vessel, approximately half filled with tap water is placed centrally on the cooking zone to be measured.</p>		N/A
	<p>The smallest vessel recommended in the instructions for use is used. If no recommendations are provided, the smallest standard vessel that covers the marked cooking zone is used. The bottom diameters of standard cooking vessels are: 110 mm, 145 mm, 180 mm, 210 mm and 300 mm.            The induction heating units are operated in turn, the other cooking zones not being covered. Energy controller settings shall be set to maximum. The measurements are made after stable operating conditions are reached.</p>		N/A
	<p>If no stable conditions can be reached, an appropriated observation time (e.g. 30 s) should be defined to be sure to get the max. value at fluctuating field sources.            NOTE Because of sharing power between induction heating units, the highest and continuous magnetic field is obtained when each heating units are operated separately.</p>		N/A

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Cl.	Requirement - Test	Result	Verdict
	<p>Lines A, B, C and D indicate the measuring positions.                      This figure shows the front left hand induction heating element of a 4-zone hob in operation.  <b>Figure A.3 – Measuring distances for induction hobs and hotplates</b></p>  <p style="text-align: right; font-size: small;">IEC 172008</p>		N/A
	<b>Annex B</b> (informative)		--
	<b>Basic restrictions and reference levels</b>		--
	The following <b>basic restrictions and reference levels</b> of 1999/519/EC apply.		P
	<b>Annex C</b> (normative)		--
	<b>Determination of coupling factors</b>		N/A



**Annex I:**  
**Photo documents**

Type of equipment, model: UV Pacifier sanitizer, HH51

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Details of: Over view

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View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Over view

---

View:

- general
- front
- rear
- right
- left
- top
- bottom





Details of: Rear view

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Right view

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Internal view

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: Internal view

View:

- general
- front
- rear
- right
- left
- top
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-- End of Report --