



Test Report – EN 62233 (2008)

Product	Heating elements for building into floors					
Name and address of the applicant	Advanced Heating Technologies Ltd. 3 Santaroza Street 2035 Strovolos Cyprus					
Name and address of the manufacturer	Advanced Heating Technologies Ltd. 3 Santaroza Street 2035 Strovolos Cyprus					
Model	ATBBUIRCVPLLWW					
Rating	94-300W 220-240V ~ 50Hz					
Brand name	AHT					
Serial number	1421					
Additional information	Cl.II					
Tested according to	EN 62233 (2008) Household and similar electrical appliances – Electromagnetic Fields – Methods for evaluation and measurement EUT is considered to comply with the requirements of EN 62233 (2008). Measured value W (weighed result) is less than 5% of the reference value.					
Tested in period	2006-09-12					
Issue date	2012-09-26					
Order number	221968					
Name and address of the testing laboratory	 P.O. Box 73 Blindern, N-0314 Oslo, Norway	Telephone (+47) 22 96 03 30 Fax (+47) 22 96 05 50				
<table border="1"><tr><td></td><td></td></tr><tr><td>Prepared by [Jørn Gustavsen]</td><td>Approved by [Jon Fredrik Mo]</td></tr></table>					Prepared by [Jørn Gustavsen]	Approved by [Jon Fredrik Mo]
Prepared by [Jørn Gustavsen]	Approved by [Jon Fredrik Mo]					



REVISIONS				
Revision number	Date	Order no.	By	Description
00	2011-01-28	144977	KO	-
01	2012-09-26	221968	JG	Due to update standard and order number

GENERAL REMARKS

This report applies only to the sample(s) tested. It is the manufacturer's responsibility to assure the additional production units of this product are manufactured with identical electrical and mechanical components. The manufacturer is responsible to the Competent Authorities in Europe for any modifications made to the product, which result in non-compliance to the relevant regulations.

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CALIBRATION

All instruments used in the tests given in this test report are calibrated and traceable to national or international standards. Between calibrations all test set-ups are controlled and verified on a regular basis.

MEASUREMENT UNCERTAINTY

Measurement uncertainties are calculated for all instruments and instrument set-ups used.

Note: Further information about measurement uncertainties will be given on request.

EVALUATION OF RESULTS

The test is passed if the measurement value including the measurement uncertainty is equal to or below the limit line. If the measurement value is above the limit line, the test is not passed.

The instrumentation accuracy is within limits specified in the reference standard.

VERDICTS

Possible test case verdicts:

Pass, Fail, N/A = Not applicable, — = No verdict required. Placed in the column to the right (Verdict).



LIST OF APPENDIXES / ENCLOSURES TO THE TEST REPORT	
Annex A	Photos
	EuT
Annex B	Recommended values
	EN 62233 Table B.2 – Reference levels for magnetic fields
	Diagram of the reference levels for magnetic fields



EQUIPMENT UNDER TEST (EUT)					
	Description of product		Heating elements for building into floors		
	Modes of operation		Highest voltage according to rating, no settings on the product. 298W power consumption during test.		
	System functional block diagram		No diagram available		
Note:					
	System Components		Product is one self-contained unit		
SC no.	Description		Manufacturer	Type	Serial No.
1	-		-	-	-
2	-		-	-	-
Note:					
	Cables		No cable attached.		
CA No.	Connection	Manufacturer	Type	Number of leads	Length
1	-	-	-	-	-
2	-	-	-	-	-
Note:					
	Product variants covered by this report		The following equipment variants are found to be identical or similar to the model tested, and deemed to be covered by the tests documented in this test report		
VA no.	Variant		Description of deviation		
1	-				
2	-				
3	-				
Note: Assessment of product variants and opinions expressed are not part of the current accreditation					
	Additional information		-		



GENERAL TEST CONDITIONS		
	Location	
	Facilities	The tests documented in this report are all conducted in the test facilities at Nemko AS in Oslo, Norway
	Quality assurance	Nemko AS is accredited by Norsk Akkreditering, according to ISO 17025.
	Operating environment	All tests and measurements were performed in a shielded enclosure or a controlled environment suitable for the tests conducted. The climatic conditions in the test areas are automatically controlled and recorded continuously

Power Supplied to EuT		
	General	Filtered electrical power was available for operation of EuT
	Voltage	240 V
	Type	AC
	Frequency	50Hz
	Grounding	Not grounded

Climatic Conditions		
	Ambient temperature	23°C (accepted range: 15 - 25°C)
	Relative humidity	45%RH
	Atmospheric pressure	100kPa



REQUIREMENTS			
Clause	Requirement	Information	Verdict
1	SCOPE		-

Clause	Requirement	Information	Verdict
2	NORMATIVE REFERENCES		-

Clause	Requirement	Information	Verdict
3	TERMS AND DEFINITIONS		-

Clause	Requirement	Information	Verdict
4	CHOICE OF TEST METHOD AND LIMIT SETS		-

Clause	Requirement	Information	Verdict
5	MEASURING METHODS		P
5.1	ELECTRIC FIELDS		P
	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.	Compliant without testing	P
5.2	FREQUENCY RANGE		P
	Frequency range considered	10Hz – 400kHz	-
5.3	MEASURING DISTANCES, POSITIONS AND OPERATING MODE		P
	Operating condition	Continuously.	-
	Measuring distance(s)	0 cm and 10 cm	-
	Measuring position(s)	Top of the EuT	-
5.4	MAGNETIC FIELD SENSOR		P
	Measurement values of flux density are averaged over an area of 100 cm ² in each direction. The reference sensor consists of three mutually perpendicular concentric coils with a measuring area of 100 cm ² □ } 5 cm ² to		-



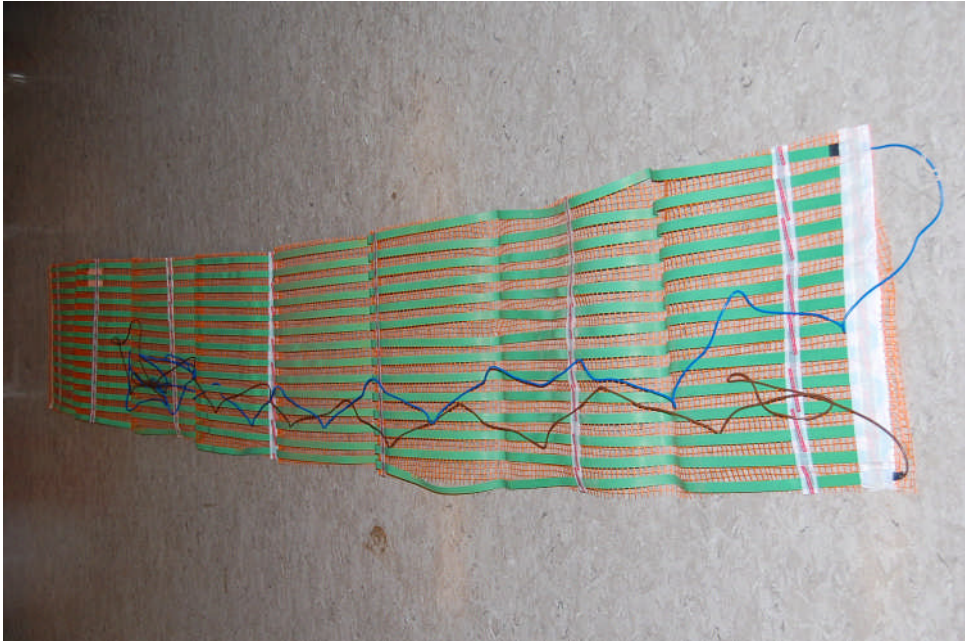
	<p>provide isotropic sensitivity. The outside diameter of the reference sensor shall not exceed 13 cm.</p> <p>For the determination of coupling factors, as specified in Annex C, an isotropic sensor having a measuring area of $3 \pm 0.3 \text{ cm}^2$ is used.</p> <p>NOTE 1 It is permissible to use a single direction sensor (not isotropic) in combination with an appropriate summation method.</p> <p>NOTE 2 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 vector.</p>		
5.5	MEASURING PROCEDURES FOR MAGNETIC FIELDS		-
	Measuring method applied	5.5.2 Time domain method	-
	Instruments used during the measurements	Narda ELT-400 BN 2304/01 N-3634 Voltech PM100 N-2308 Fluke 27	-
	Background noise level	< 1% of limit	P
5.5.2	Time domain method		P
<p>Note: An initial check of the ambient magnetic field was conducted to verify a standardized test environment.</p> <p>A screening test was made to identify the "hot spot" of EuT (where the EuT had its peak magnetic radiation level). The screening was only performed at faces of the EuT specified to be applicable in the standard, at the measuring distance specified.</p> <p>A final measurement was then performed at the "hot spot", and the measured level recorded in this report as a percentage of the reference level (See Annex B).</p> <p>If the measured level was found to be higher than the reference level, the measured level was multiplied by a coupling factor specified in the standard and recorded in this report as a percentage of the reference level (limit).</p> <p>If either of the two values were below the reference level, the product was considered compliant with the standard.</p>			
	Measured level	0.7 % Of limit @ measuring distance 10 cm 2.0 % Of limit @ measuring distance 0 cm	P
	Position of worst measured level	No significant worst position found	-
	Calculated level	Not required, measured level is below reference level	N
	Spectrum analysis	No spectrum available	N
<p>Note:</p>			
5.5.3	Line spectrum evaluation method	Method not used	N
5.5.4	Alternative test method	Method not used	N
5.6	MEASUREMENT UNCERTAINTY		P
	The maximum overall measurement uncertainty shall not	Magnetic fields: 12% at the reference value.	P



	<p>exceed 25 % of the limit.</p> <p>When the result has to be compared with a limit, the measurement uncertainty shall be implemented as follows:</p> <ul style="list-style-type: none">– 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; NOTE This applies e.g. for measurements carried out by the manufacturer.– 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. NOTE This applies e.g. for measurements carried out by authorities for market surveillance purposes.		
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Annexes

ANNEX A	PHOTOS
	
Note: EuT	



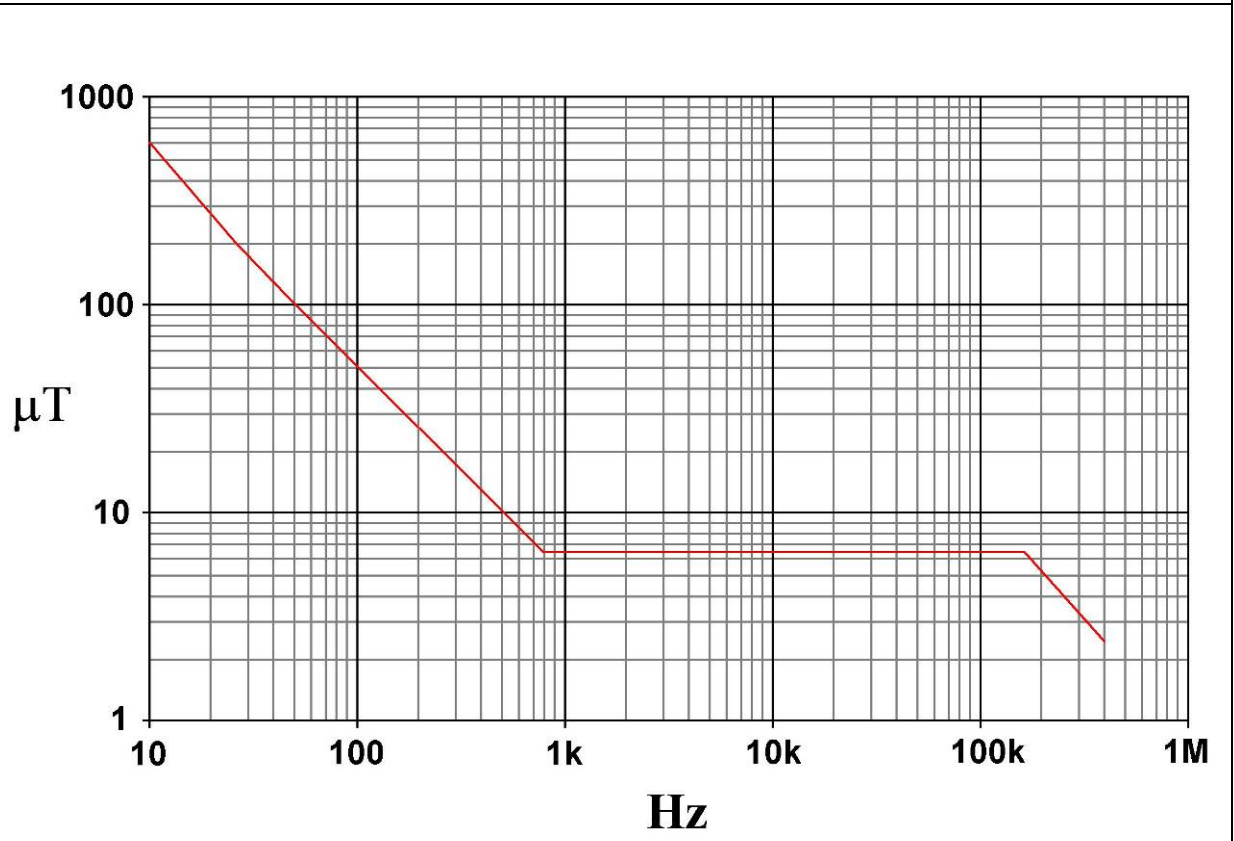
ANNEX B RECOMMENDED VALUES

EN 62233 Table B.2 – Reference levels for magnetic B-fields

Frequency	B-Field
0Hz – 1Hz	4×10^4 [μ T]
1Hz – 8Hz	$4 \times 10^4 / f^2$ [μ T]
8Hz – 25Hz	$5000 / f$ [μ T]
0.025kHz – 0.8kHz	$5 / f$ [μ T]
0.8kHz – 3kHz	6.25 [μ T]
3kHz – 150kHz	6.25 [μ T]
0.15MHz – 1MHz	$0.92 / f$ [μ T]

Note: f is as indicated in the frequency range column

Diagram of the reference levels for magnetic fields



Note: Reference levels for range: 10Hz to 400kHz