Test Report – EN 62233 (2008)

Product	Hobs for building-in (Induction hob elements)
Name and address of the applicant	Tecnowind SpA Piani di Marischio, 19 I-60044 Fabriano (AN) ITALY
Name and address of the manufacturer	Tecnowind SpA Piani di Marischio, 19 I-60044 Fabriano (AN) ITALY
Model	Type PI58.. .. ..Family Type PI29.. .. ..Family
Rating	-
Brand name	3,7-6,0-7,4kW 220-240V AC or 380-415V 2N 50/60Hz
Serial number	N/A
Additional information	Cl.I
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	2008-03-25,2007-10-02, 2007-10-01, 2008-03-25, 2009-03-19 and 2011-03-17
Issue date	2011-04-05
Order number	168231
Name and address of the testing laboratory	Nemko P.O. Box 73 Blindern, N-0314 Oslo, Norway Telephone (+47) 22 96 03 30 Fax (+47) 22 96 05 50

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REVISIONS			
Revision number	**Date**	**By**	**Description**
00	2007-10-02	94012	Individual Nemko Norway file
01	2007-10-01	89563	Individual Nemko Norway file
02	2008-03-25	102792	Individual Nemko Norway file
03	2008-12-12	116120	First issue of this file based on previous work of the above files
04	2009-04-23	124529	Addition of alternative components for model EC7400. New power distribution card, control and display PCB (slider and Lite) and addition of two alternative induction hobs. The new induction hob E.G.O. 75.08010.102 is identical to the previously tested hob E.G.O. 75.08010.101 and is therefore not tested.
05	2010-12-13	160843	Change of address of the Applicant and the Manufacturer
06	2011-04-05	168231	Addition of new model variants with new components. See page 4 for details

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**
	The 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	Hobs for building-in (Induction)			
	Modes of operation	Highest settings, each heating unit separately.			
	System functional block diagram	No diagram available			
Note:					
	System Components	Product is one self-contained unit			
SC no.	**Description**	**Manufacturer**	**Type**	**Serial No.**	
Note:					
	Cables	Only standard AC cable attached (w/ground wire)			
CA No.	**Connection**	**Manufacturer**	**Type**	**Number of leads**	**Length**
	-	-	-	-	-
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.	**Type**	**Model**	**Rated power input**	**Rated voltage**	
1	PI58	EO6400	6,4kW	220-240V AC	
2	PI58	EV7400	7,4kW	220-240V AC	
3	PI58	EV6400	6,4kW	220-240V AC	
4	PI58	EC7400	7,4kW	220-240V AC	
5	PI58	EV7000	7,0kW	220-240V AC	
6	PI58	EV7200	7,2kW	220-240V AC	
7	PI58	EC6000	6,0kW	220-240V AC	
8	PI29	E03700	3,7kW	220-240V AC	
9	PI58	XC7400	7,4kW	220-240 V~ / 380-415 V 2N~	
10	PI58	XC7100	7,1kW	220-240 V~ / 380-415 V 2N~	
11	PI58	XC6700	6,7kW	220-240 V~ / 380-415 V 2N~	
12	PI58	XC6400	6,4kW	220-240 V~ / 380-415 V 2N~	
13	PI29	X03400	3,4kW	220-240V AC	
14	PI29	X03700	3,7kW	220-240V AC	
Note: Assessment of product variants and opinions expressed are not part of the current accreditation					

	Additional information	
		Explanation of the type and reference: PI: hob for build-in (Piano) Induction Hob PI58: Induction hobs, 58cm wide. PI29: Induction hobs, 29cm wide. <u>First two dots:</u> EO: Electronic regulator, horizontal EV: Electronic regulator, vertical EC: Electronic regulator, central position XC: New induction hobs, electronic regulator, central position <u>Last four dots:</u> Rated power input in watts.

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	230 V
	Type	AC
	Frequency	# Hz
	Grounding	Grounded through its power connection

	Climatic Conditions	
	Ambient temperature	23°C (accepted range: 15 - 25°C)
	Relative humidity	45% (accepted range: 30 - 60%)
	Atmospheric pressure	100kPa (accepted range: 86 – 106kPa)

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	Highest setting and each heating unit separately tested.	**-**
	Measuring distance(s)	30 cm	**-**
	Measuring position(s)	All around 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 cm2 □} 5 cm2 to provide isotropic sensitivity. The outside diameter of the reference sensor shall not exceed 13 cm. For the determination of **coupling factors**, as specified in Annex C, an isotropic sensor having a measuring area of 3 ± 0.3 cm2 is used. NOTE 1 It is permissible to use a single direction sensor (not isotropic) in combination with an appropriate summation method. 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.		
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**

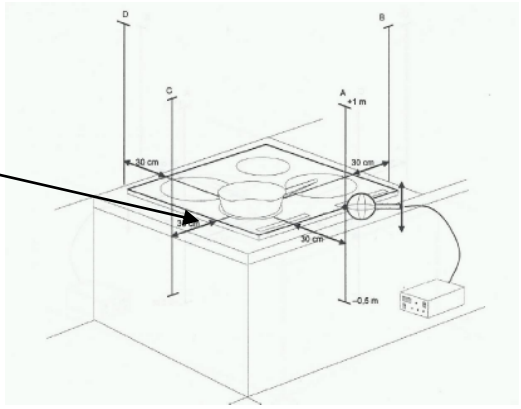
Note: An initial check of the ambient magnetic field was conducted to verify a standardized test environment.

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.

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).

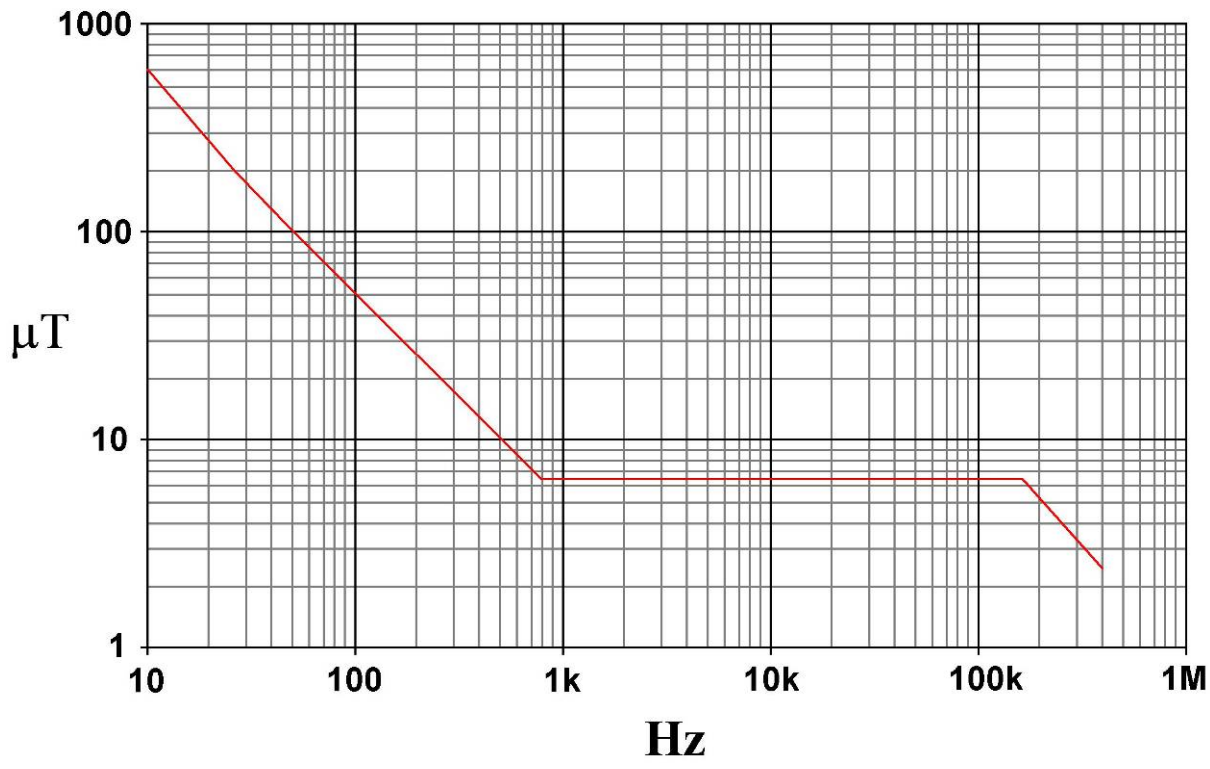
If the measured level was found to be higher than the reference level, the measured level was multiplied by a coupling factor specified in the standard and recorded in this report as a percentage of the reference level (limit).

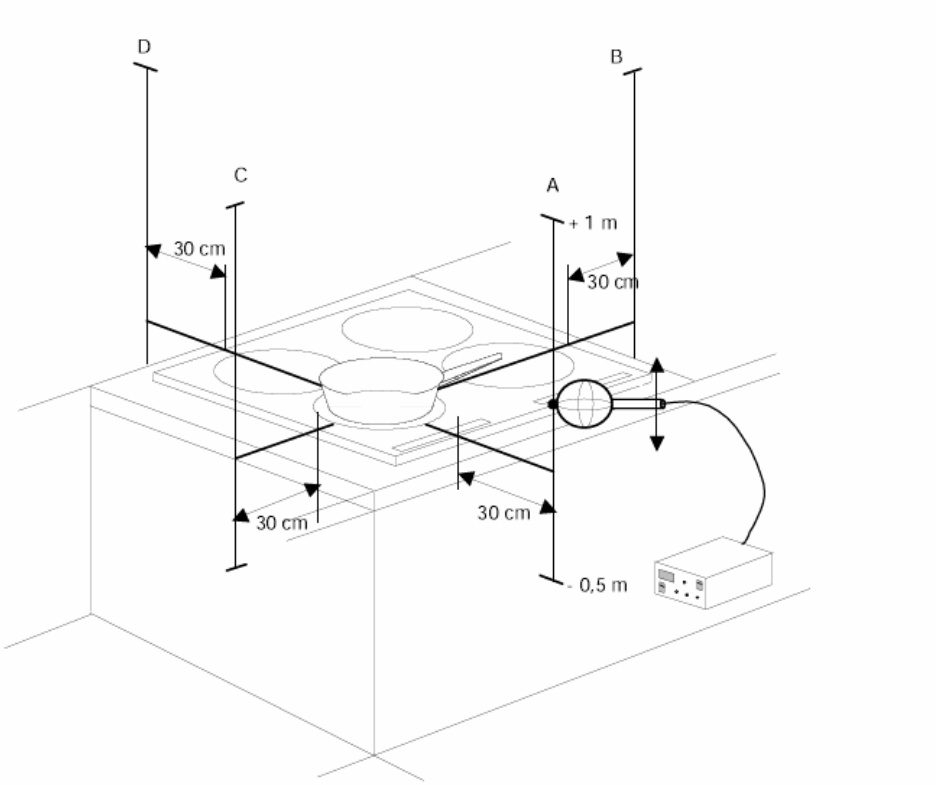
If either of the two values were below the reference level, the product was considered compliant with the standard.

	Measured level	< 19 % Of limit	**P**
	Position of worst measured level	See illustration below	**-**
	Worst position		

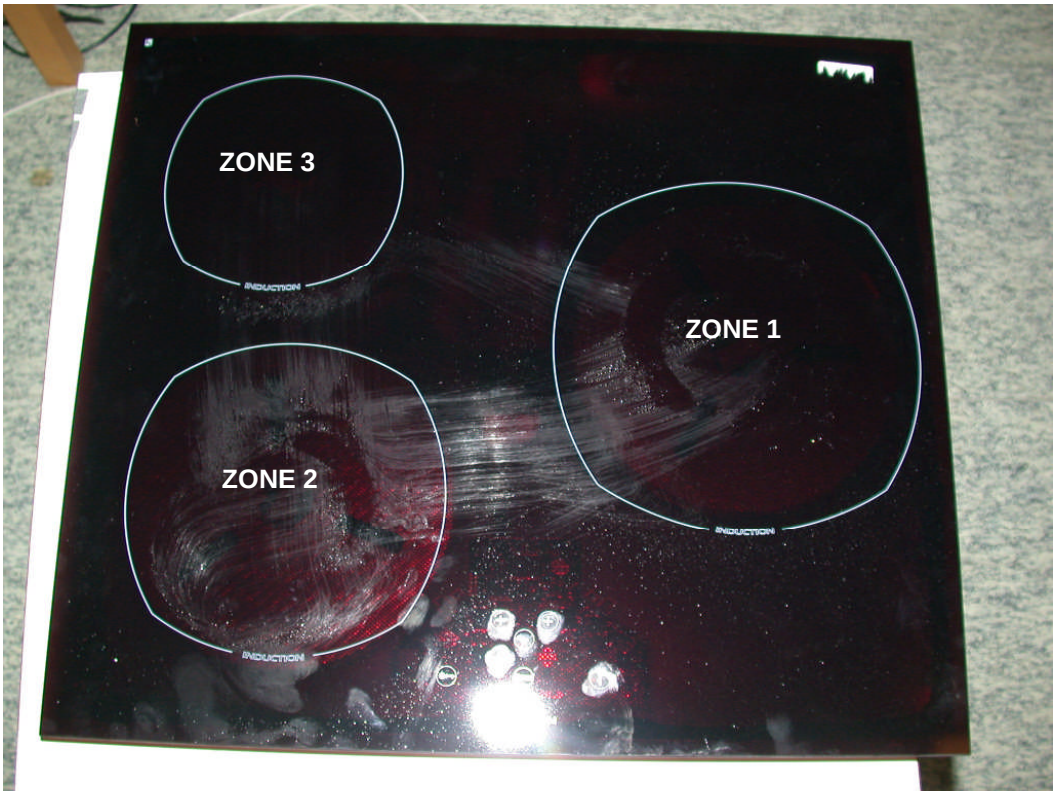
	Calculated level	Not required, measured level is below reference level	**N**
	Spectrum analysis	No spectrum available	**N**
Note:			
5.5.3	Line spectrum evaluation method	Method not used	**N**
5.5.4	Alternative test method	Method not used	**N**
5.6	**MEASUREMENT UNCERTAINTY**		**P**
	The maximum overall measurement uncertainty shall not exceed 25 % of the limit. When the result has to be compared with a limit, the measurement uncertainty shall be implemented as follows: – 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.	Magnetic fields: 12% at the reference value.	**P**

Annexes

ANNEX A	RECOMMENDED VALUES	
	EN 62233 Table B.2 – Reference levels for magnetic B-fields	
	Frequency	**B-Field**
	0Hz – 1Hz	4 x10^4 [µT]
	1Hz – 8Hz	4 x 10^4 / f^2 [µT]
	8Hz – 25Hz	5000 / f [µT]
	0.025kHz – 0.8kHz	5 / f [µT]
	0.8kHz – 3kHz	6.25 [µT]
	3kHz – 150kHz	6.25 [µT]
	0.15MHz – 1MHz	0.92 / f [µT]
		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

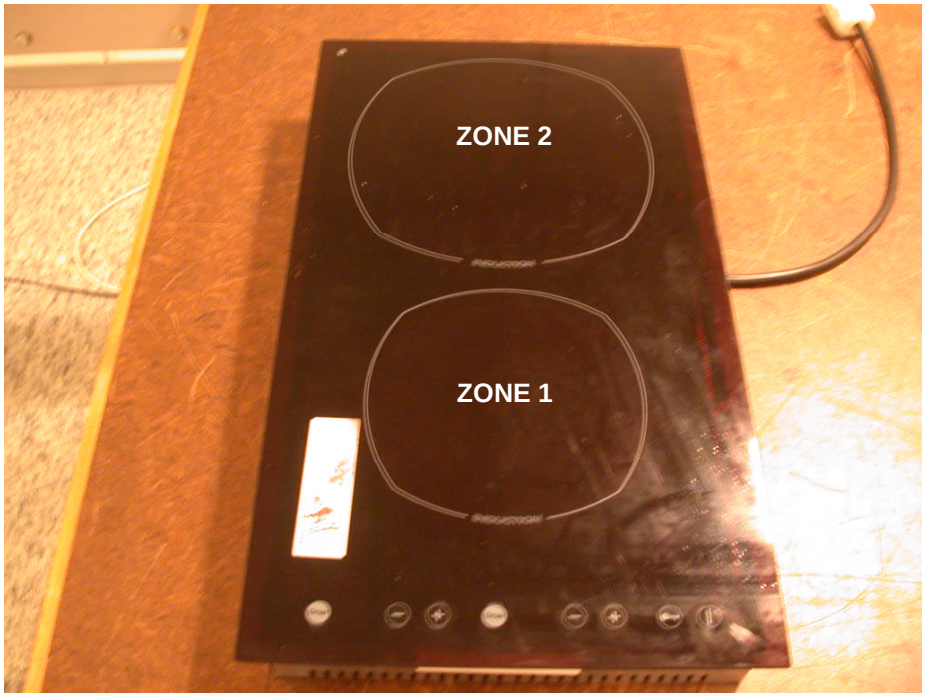
ANNEX B	MEASUREMENT POSITIONS
	

ANNEX C	MEASUREMENT – ORDER NUMBER 89563
	Measurement performed on model PI58 EC6000



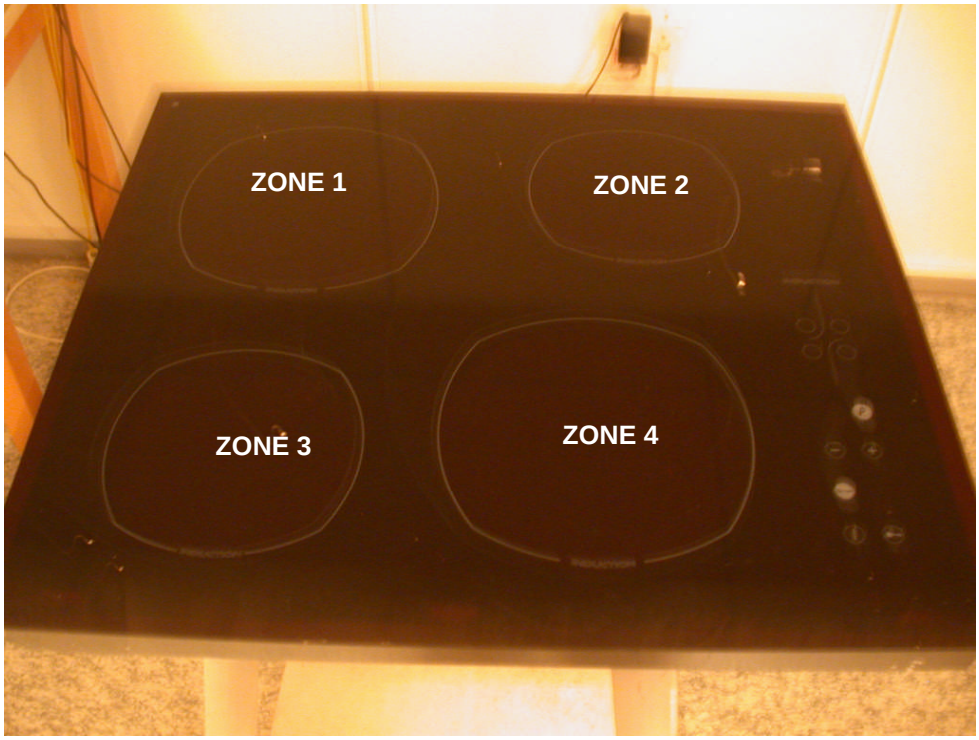
	Test Point	Induction zone 1	Induction zone 2	Induction zone 3
	A	2,6%	8,9%	0,85%
	B	9,7%	2,8%	0,87%
	C	2,8%	6,2%	3,0%
	D	3,2%	3,3%	2,3%

ANNEX D	MEASUREMENT – ORDER NUMBER 94012
	Measurement performed on model PI29 E03700



	Test Point	Induction zone 1	Induction zone 2
	A	2%	2,8%
	B	2,7%	3,5%
	C	1,1%	8,3%
	D	3,4%	4%

ANNEX E	MEASUREMENT – ORDER NUMBER 102792
	Measurement performed on model PI58 EC7400



	Test Point	Induction zone 1	Induction zone 2	Induction zone 3	Induction zone 4
	A	4,9%	0,5%	6,0%	4,7%
	B	1,1%	1,2%	2,0%	2,9%
	C	3,8%	0,6%	4,6%	2,0%
	D	6,5%	1,9%	7,5%	7,2%

ANNEX F	MEASUREMENT – ORDER NUMBER 124529
	Measurement performed on model PI58 EC7400 model “Slider”

	Test Point	Induction zone 1	Induction zone 2	Induction zone 3	Induction zone 4
	A	13.0%	#	#	Not measured
	B	Not measured	#	#	12.9%
	C	14.0%	#	#	Not measured
	D	Not measured	#	#	13%

Supplementary information: Induction zone 2 and Induction zone 3 is previously tested. The” not measured” field are far below the other directions due to the distance. See previous measurements.

ANNEX F	MEASUREMENT – ORDER NUMBER 124529
	Measurement performed on model PI58 EC7400 model “Lite”

	Test Point	Induction zone 1	Induction zone 2	Induction zone 3	Induction zone 4
	A	16.0%	#	#	Not measured
	B	Not measured	#	#	15.0%
	C	15.0%	#	#	Not measured
	D	Not measured	#	#	15.0%

Supplementary information: Induction zone 2 and Induction zone 3 is previously tested. The” not measured” field are far below the other directions due to the distance. See previous measurements.

ANNEX G	MEASUREMENT – ORDER NUMBER 168231
	Measurement performed on model PI58 3f

	Test Point	Induction zone 1 (1.3kW)	Induction zone 2 (1.4kW)	Induction zone 3 (2.3kW)	Induction zone 4
	A	-	9.5%	-	
	B	-	-	6.5%	
	C	4,4%	-	-	
	D	-	-	-	

Notes: Only worst position is noted

Measurement performed on model PI58 4f

Test Point	Induction zone 1 (2.1kW)	Induction zone 2 (1.4kW)	Induction zone 3 (2.2kW)	Induction zone 4 (1.3kW)
A	-	2%	-	
B	-	-	12%	2%
C	12%	-	-	
D	-	-	-	

Notes: Only worst position is noted