

**Nemko****TEST REPORT**Date: ESPOO 17.10.2011Page: 1 (8)Appendices -Number:
No. 1 / 1**154409HEMF**

Date of handing in: 01.07.2010

Tested by:

Jonas Dahlgren, Test Engineer

Reviewed by:

Timo Leismala, Test Manager

SORT OF EQUIPMENT:

Wireless charging transmitter and receiver

MARKETING NAME:

Single Heart white

TYPE:

2.1

MANUFACTURER:

Powerkiss Oy, Finland

SERIAL NUMBER:

-

CLIENT:

Powerkiss Oy, Finland

ADDRESS:

Betonimiehenkuja 5, FI – 02150 ESPOO, FINLAND

TELEPHONE:

+358 44 059 3313

TEST SPECIFICATION:

OET BULLETIN 65, ED.97-01 + Supplement C ED. 01-01**SUMMARY:**

In regard to the performed tests the EUT fulfils the requirements defined in the test specification OET BULLETIN 65, ED.97-01, Table 1 (B) when using a minimum safety distances of 20 cm and 25 cm.

Measurement results have been compared directly with the limit values without considering measurement uncertainties.

The test results are valid for the tested unit only. Without a written permission of Nemko Oy it is allowed to copy this report as a whole, but not partially.

REVISIONS					
Initial report issue date		30.08.2010			
Revisions		The report has been updated on 03.06.2011, 28.06.2011 and 15.9.2011			
Revision number	Date	By	Description		
C	03.06.2011	TLs	Electric field measurement result added at 10 cm measuring distance.		
D	28.06.2011	JNm	Electric and magnetic field measurement results at 5 cm and 10 cm added for the EUT operating at the frequency of 113 kHz.		
F	15.9.2011	JNm	Measurements performed again with new test distances, electric fields measured with E-field probe.		
G	06.10.2011	JNm	All measurement results added horizontally around the EUT		
H	17.10.2011	JNm	Measurement positions 3 and 4 replaced by each other on page 4		
DISTRIBUTION					
Copy number	Date	Distribution			
1		Applicant original paper copy			
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.					
This report shall not be reproduced except in full without the written approval of Nemko.					
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.					
The instruments specified in immunity testing are subject to periodic calibration. Monthly controls ensure, with 95% confidence that the instruments remain within the calibrated levels.					
MEASUREMENT UNCERTAINTY					
Measurement uncertainties are calculated for all instruments and instrument set-ups used during the emission measurements. Uncertainty figures are informed in each test section in this report.					
Note: Further information about measurement uncertainties will be given on request.					
EVALUATION OF RESULTS					
If not explicitly stated otherwise in the standard, the test is passed if the measurement value is equal to or below the limit line, regardless of the uncertainty of the measurement. If the measurement value is above the limit line, the test is not passed - ref. IECEE/CTL (Sec) 056/94 (CTL = Committee of Testing Laboratories).					
The instrumentation accuracy is within limits agreed by the IECEE/CTL (ref. Nemko proc. P226).					
The argument for using this method is that it is commonly accepted that the limits have already taken into account the measurement uncertainties as long as the measurements are conducted according to a common good laboratory practice.					
VERDICTS					
Possible test case verdicts: P = Pass, F = Fail, N = Not applicable, — = No verdict required. Placed in the column to the right (Verdict).					

EQUIPMENT UNDER TEST (EUT)

	Description of product	Wireless charging transmitter and receiver (fixed installation)
	Modes of operation	Normal operating mode with a resistive load
	System functional block diagram	No diagram available

Note:

	System Components	See table below		
SC no.	Description	Manufacturer	Type	Serial No.
1	Wireless charging transmitter unit (Heart)	Powerkiss Oy, Finland	2.1	-
2	Receiving unit (Ring)	Powerkiss Oy, Finland	R3.1	
3	Switching Power Supply	FP Switching Power Supply	SAW18-12.0-1500	-

Note:

	Cables	This product has been tested with the following cable types and cable configurations.			
CA No.	Connection	Manufacturer	Type	Number of leads	Length
1	IEC/EN 60320-1, DC appliance extension connection		DC cable, unshielded	2	2.0 m

Note:

	Product variants covered by this report	No product variants			
VA no.	Variant	Description of deviation			
1					

Note:

	Additional information	Type plate
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PowerKiss Heart

Wire-free Charging Transmitter

FCC ID: ZMI-WCT12W

Version: 2.1

S/N: A00500

Input: 12±0.2 V DC / 1.0 A / 12 W

Use only with power supplies listed in the manual

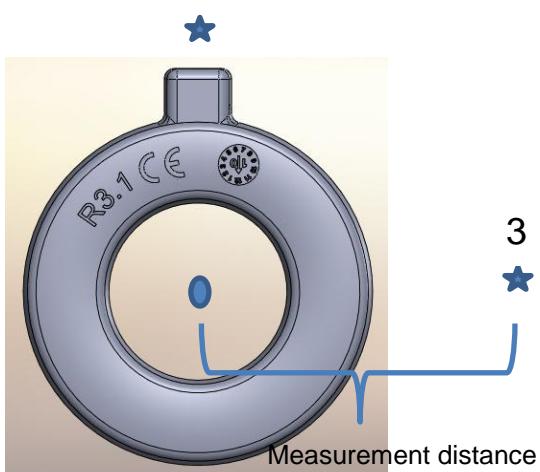
Indoor use only

GENERAL TEST CONDITIONS

	Location	
	Facilities	The tests documented in this report are all conducted in the facilities of Nemko Oy in Espoo, Finland
	Operating environment	All tests and measurements were performed in a normal room. Environment was measured to be suitable for the tests conducted.

	Power Supplied to EuT	
	General	Direct current electrical power was available for operation of EuT in all test areas.
	Voltage	12 ± 0.2 V
	Type	DC
	Grounding	Grounded through its power connection

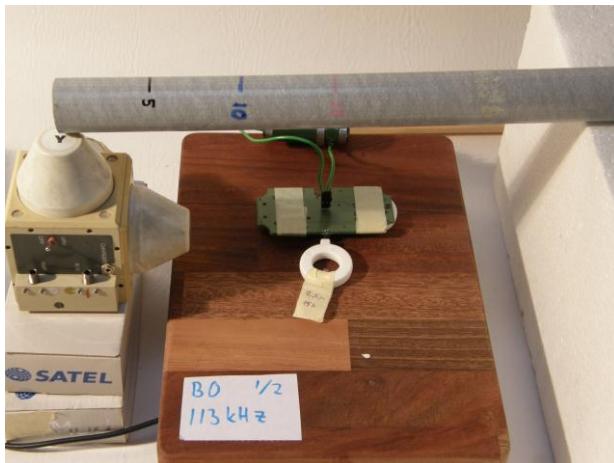
	Climatic Conditions	
	Ambient temperature	25 °C (accepted range: 15 - 25°C)
	Relative humidity	27 %
	Atmospheric pressure	1014 hPa

	Test positions	
		 <p>4</p> <p>1</p> <p>3</p> <p>2</p> <p>5 Below the center point of the Heart unit</p> <p>6 Above the center point of the ring unit</p> <p>Measurement distance</p>

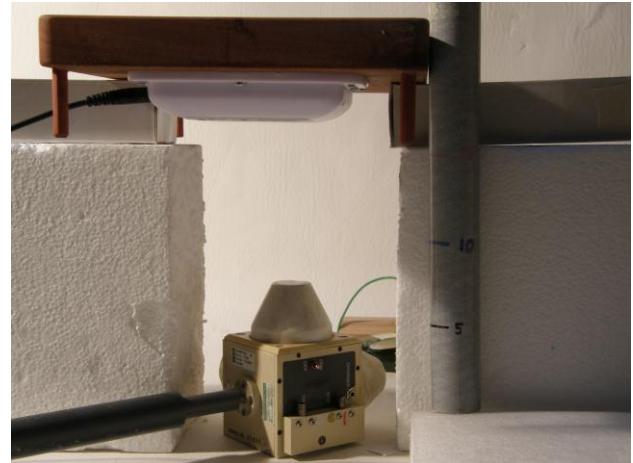
REQUIREMENTS																																																																																																				
Clause	Requirement	Information	Verdict																																																																																																	
	OET BULLETIN 65, ED.97-01: Table 1 (B)	Magnetic and electric fields, general population / uncontrolled exposure	-																																																																																																	
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	MEASURING METHODS		-																																																																																																	
1	ELECTRIC FIELDS		Refer below:																																																																																																	
	Measurement instrument: Holaday HI-4422 Isotropic E-field probe, S/N: 95835 Dynamic range: 1-300 V/m 	Frequency range: 10 kHz – 1 GHz Operating condition: See below Measuring distances: 5, 10, 15, 20 and 24 cm. Measuring distance was determined as follows: Above and aside the EUT the measuring distance was determined as a distance between the center point of E-field probe and the center point of a Ring. Below the EUT the measuring distance was determined as a distance between the center point of E-field probe and the closest point of the transmitter unit (Heart).	-																																																																																																	
	Operating condition		Measurements were performed in normal operating mode both with and without a load. Two separate loads were used: a resistive load utilizing the maximum charging current and a typical mobile phone (Nokia E51).																																																																																																	
	"Hot spot" location		Above and aside of the EUT: center point of the receiving unit (Ring). Below the EUT: the closest point of the transmitting unit (Heart).																																																																																																	
Measurement Results (V/m): Resistive load:		Measurement Results (V/m): Typical load (Nokia E51):																																																																																																		
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Photographs of the electric field measurements



Electric field measurement, side position (1)



Electric field measurement, below position (5)



Electric field measurement, above position (6)

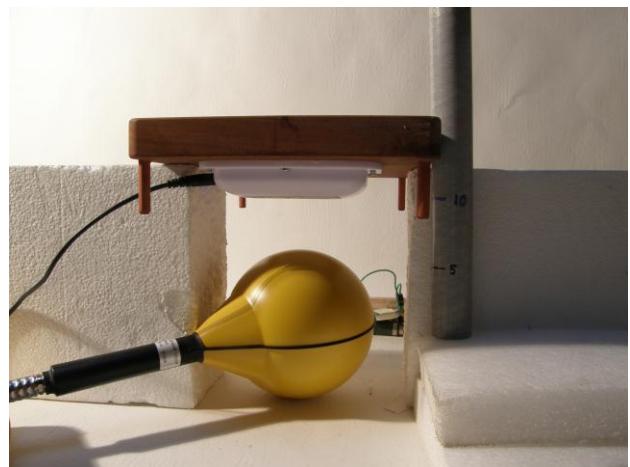


Typical load, Nokia E51 mobile phone

Photographs of the magnetic field measurements																																																																																																																										
2	MAGNETIC FIELDS			Refer below:																																																																																																																						
	Measurement instrument: Narda ELT-400 Magnetic fields meter, S/N: E-0046			Frequency range: 10Hz – 400kHz Operating condition: see below Measuring distances: 5, 10, 15, 20 and 24 cm. Measuring distance was determined as follows: Above and aside the EUT the measuring distance was determined as a distance between the center point of magnetic field meter antenna and the center point of a Ring. Below the EUT the measuring distance was determined as a distance between the center point of magnetic field meter antenna and the closest point of the transmitter unit (Heart).																																																																																																																						
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	Background noise level			< 2 % of recommended values.																																																																																																																						
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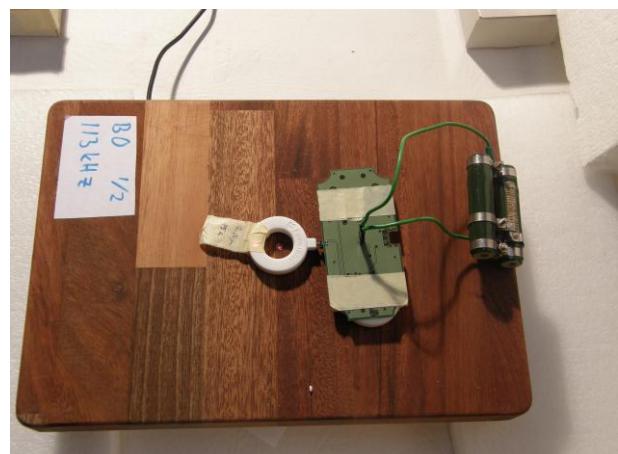
Magnetic field measurement, side position (1)



Magnetic field measurement, below position (5)



Magnetic field measurement, above position (6)



Resistive load

3	MEASUREMENT UNCERTAINTY		-
		<p>Measurement uncertainties:</p> <p>Electric fields (HI-4422):</p> <ul style="list-style-type: none">- Frequency response 10 kHz-250 MHz: $\pm 0.5\text{dB}$- 250 MHz-1 GHz: $\pm 1.0\text{dB}$- Isotropicity: $\pm 0.5\text{dB}$ <p>Magnetic fields (ELT-400): 4%</p>	-