IIREC

International Institute for Research on
Electromagnetic Compatibility

Test report and opinion on physical and biological effects of earthcalm EMF protection products

Report on measurements in the static (DC) and extremely low frequency (ELF) magnetic field and measurements of heart rate variability (HRV)

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Important notes:

The investigation of composition, manufacturing and mode of operation of the product was not contracted. The scope of this report is exclusively the documentation and evaluation of effects that were assessed by objective means. Disclosure of results to third parties is not within the range of contract. It is up to the manufacturer to care for constant product quality.

1. Subject of the report

EarthCalm, Inc. has developed a series of EMF protection products based on scalar resonance technology . For composition, and mode of operation, and application of the products we refer to the information provided by the manufacturer.

The **International Institute for Research on Electromagnetic compatibility (IIREC)** is an independent research and test institute focussing on electromagnetic bio-compatibility on a biophysical basis. Walter H. Medinger, M.Sc., Ph.D., the scientific head of the institute, author of this report and opinion, is a sworn and certified expert at court.

IIREC was instructed to test by objective physical and biological measurements if it is possible to assess an effect of selected earthcalm products (i) on magnetic field disruptions and (ii) on the human body system.

Products tested were:

a. Traditional scalar resonator

b. Quantum cell

c. Omega WiFi

d. Scalar home protection system

2. Magnetic field testing

2.1 Method of investigation

Experience by IIREC shows that an improvement of the bio-compatibility of ambient EMFs (DC, low frequency and radio frequency fields) can be substantiated by grid measurements of the magnetic field, mapping the two-dimensional structure of the field. This is performed by measuring of vertical magnetic flux density (or magnetic induction) in an array of grid points. The **measurement of the structure of the magetic field** and its mapping as a so-called field coherence pattern (FCP) in DC and ELF magnetic field (up to 15 Hz approx.) was conducted under laboratory conditions by means of Precision Teslameter 05/40 (measuring range 100 Microtesla = μT, maximum deviation 0.5 % at 40 μT). More technical data of the meter are offered in **table 1.**

A Voltcraft VC 960 Multimeter was used for data logging.

Note that in all tests the object of testing are magnetic field modulations in the natural DC and ELF range, with the electric mains frequency and radio frequencies being just carriers of those effects.

Table 1: Technical specification of Precision Teslameter 05/40

Kind of measurement	DC, ELF AC
Display	LCD, 3 ½ characters
Amplitude	0 to ± 110 µT
Resolution	0,1 µT
Linearity deviation	field line parallel to probe axis
Display	± 0,5 % with 40 µT (i.e. ± 0,2 µT)
Analog output	± 0,2 % of measured value ± 5 nT
Hysteresis	0,005 % of measured value
Temperature coefficient	max. 0,03 % /K (10 to 40 °C)
Zero drift	max. 2 nT /K
Bandwidth -3 dB	0 to 18 Hz
Working temperature	10 °C to 40 °C
Storage temperature	-10 °C to 50 °C
max. relative humidity	70 % with + 35 °C
Power supply	9 V battery block
Time of operation	approx. 40 hrs.
Analog output:	
Factor	100 µT/ 1 V
Bandwidth	18 Hz
Rise time	< 300 µs
Connector socket	BNC
Inner resistance	400 Ohm
Capacitive load	< 500 pF
Measuring bob:	
Length	140 mm
Diameter	20 mm ∅
Magnetic excentricity	< 2 °
Wire length	1,5 m
Probe	
Length	22 mm
Diameter	3 mm ∅

Test setting

(i) During **tests with a laptop in WiFi transmission mode**, the measuring field was materialized by a wooden board with an array of 121 (i.e. 11 x 11) measuring points at distances of 5 cm each. A dolly with a cursor containing a probe holder facilitated a precise adjustment of the measuring probe (fig. 1). The laptop computer was slided beneath this apparatus (fig. 2) with WiFi transmission going on (fig. 3). During measurements of the effect of the product, Omega WiFi was stuck in a computer port (fig. 4).

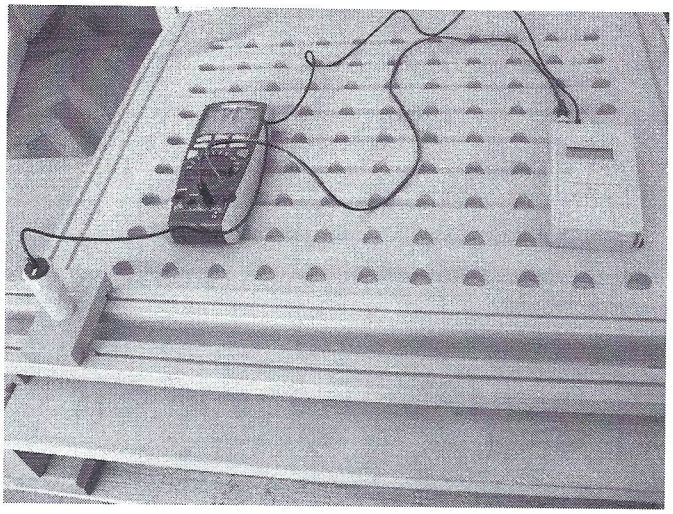


Fig. 1:

Wooden measuring apparatus with teslameter (yellow), data logger (grey) and measuring probe (black) in probe holder (white). Yellow marks serve to adjust the probe precisely in the holder, to prevent measurement deviation by torsion.

Fig. 2:

The laptop computer being slided beneath the measuring array. In its final position, its WiFi transmitter was placed precisely in the center of the measuring field.

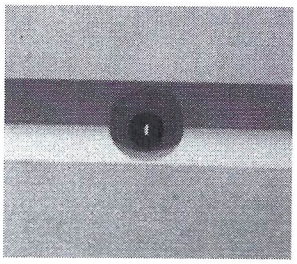


Fig. 3:

The blue light shining thru the center hole of the measuring plate indicates WiFi transmission going on.

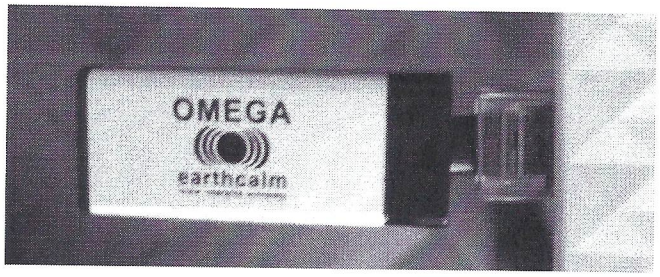


Fig. 4:

Omega WiFi is a stick being connected to the web cable port of the computer.

The measurement comprised three runs: (i) sheer background field (without a laptop), (ii) field with an activated laptop in WiFi transmission mode (display on, processor operating), (iii) the same condition, but with Omega Wifi in a computer port. (iv) Measurement (iii) was repeated with another test sample of Omega WiFi that had undergone magnetic stress exposition.

As a laptop computer, we used a VAIO notebook by Sony.

(ii) During **tests with a smart phone in conversation mode**, the setting as in fig. 1 was used, but instead of the laptop computer the cellular phone was placed in a drawer (fig. 5 and 6). During measurements of the effect of the product, the Quantum Cell sticker attached to the phone (fig. 7).

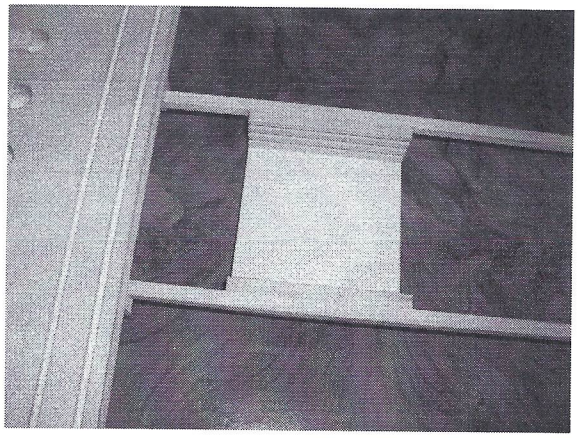


Fig. 5:

In the measurement setting as in fig. 1, a drawer beneath the measuring plane is designed for placing a cell phone in it.

Fig. 6:

Measuring magnetic field effects of a cell phone. The smart phone with an open line is placed in the drawer. When the drawer is set in, the phone is positioned in the centre of the measuring array.

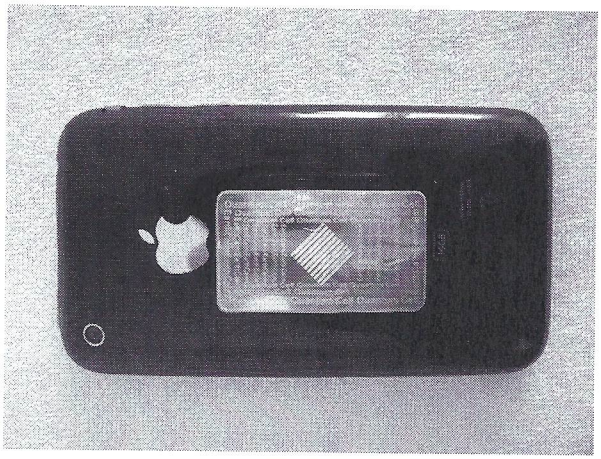


Fig. 7:

For testing the effect of the Quantum Cell sticker, the device is attached to the back side cover of the smart phone.

In this case, the measurement runs were: (i) sheer background field (without a cellular), (ii) field with an activated smart phone in transmission mode (simulated conversation mode), (iii) the same condition, but with Quantum Cell sticker on the back side of the phone. (iv) Measurement (iii) was repeated with another test sample of Quantum Cell that had undergone magnetic stress exposition.

As a smart phone, we used an iPhone by Apple Computers.

(iii) For **testing the traditional Scalar Resonator and the Scalar Home Protection System**, the setting as in fig. 1 was used for monitoring magnetic field effects in a geological stress zone with magnetic anomalies (fig. 8).

After background measurement of the zone as it was, the *Scalar Resonator* was laid down to the ground where the zone was entering the measuring field (fig. 9). Although the Scalar Resonator is designed for the protection of *people*, we had the idea that our measurement system should reveal an interaction between the Scalar Resonator and the coherence of the magnetic field.

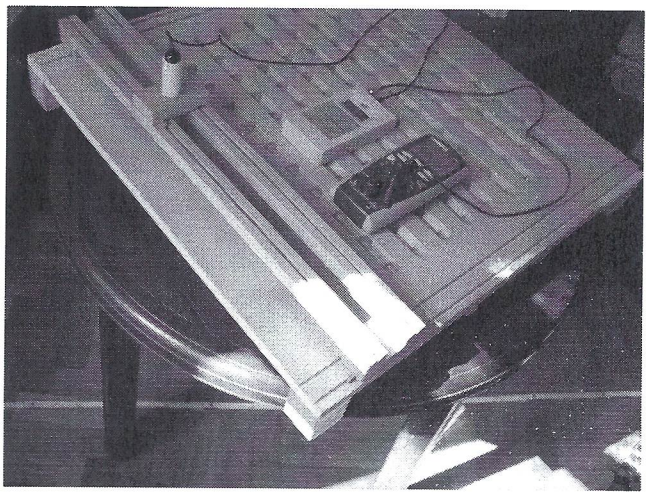


Fig. 8:

Measurement setting with apparatus on the blue measuring table and a yardstick marking the magnetic stress zone on the ground.

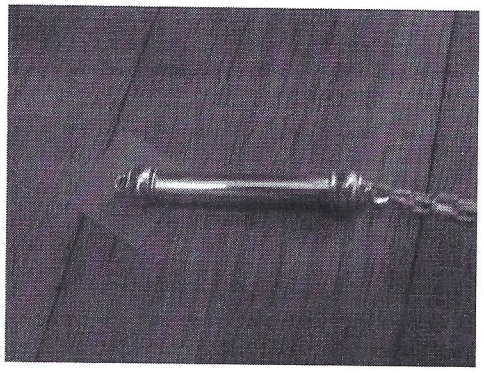


Fig. 9:

The traditional Scalar Resonator laid down on the ground at the corner of the measurement field where the zone of magnetic anomalies enters.

Fig. 10:

The basic module of the Scalar Home Protection system plugged into the wall.

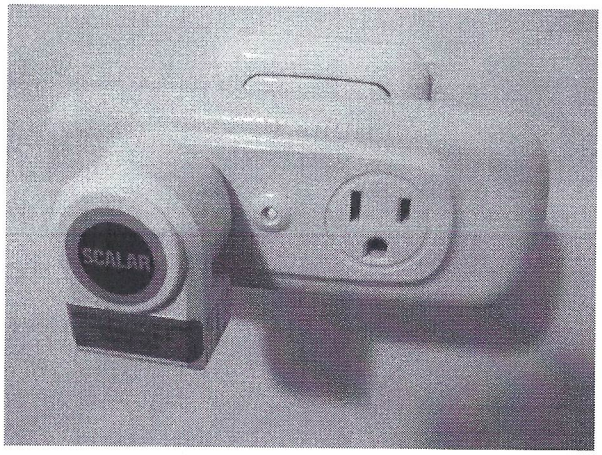


Fig. 11:

The first one of the additional modules (marked 'Scalar') plugged in.

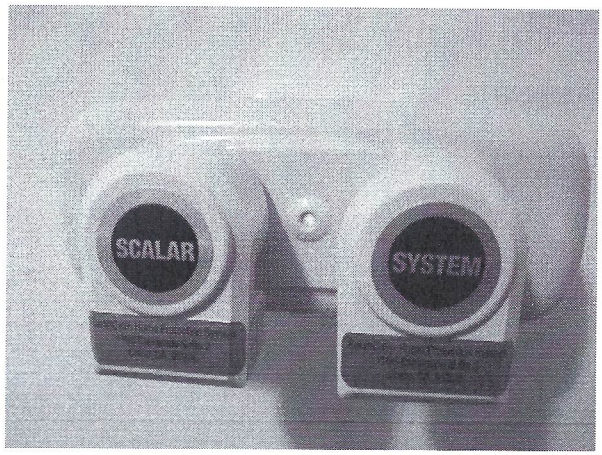


Fig. 12:

The final module (marked 'System') plugged in, too.

There were two measurement runs for catching the effect of the traditional Scalar Resonator: (i) sheer background field, (ii) background field after 24-hour impact of the Resonator. An additional measurement was run to test another sample of the Resonator that had undergone magnetic stress treatment.

In case of the *Scalar Home Protection System*, the magnetic field of the geological stress zone was used as an indicator of the effectiveness of the system. The Home Protection was installed in a neighboring room, for the supposed effect being broadcast to the measuring field via the house's electrical system. The Scalar Home Protection was installed in 3 steps that are recommended for adaptation to the full strentgh of the system. In step 1, the base plug (i.e. the larger module) is plugged into the wall. In step 2, one of the smaller plugs marked 'Scalar' is plugged into the larger module. That was the condition for the background measurement. The last plug marked 'System' is declared to be the most powerful step. To grasp its effect, another measurement run was conducted after the module 'System' being plugged into the larger module (in addition to the 'Scalar' module). The measurement run was repeated with a sample set of modules that were subject to magnetic stress treatment.

Testing of resistance against magnetic stress

Of each product in test, one sample was exposed for 72 hours to a magnetic field with highly inhomogeneous gradient. This procedure is necessary to find out if there was any reduction or failure of effectiveness of the product by impact of a serious magnetic field distortion. After exposition, the respective test was run as usual.

The results of measurements with samples that had undergone magnetic stress treatment are included in the following section.

2.2 Results and assessment

The values of vertical magnetic induction, or flux density, measured in Microtesla (μT) at 121 measuring points, were imported from the data logger to the computer and evaluated by means of data analysis software Surfer V. 7 by Golden Software Inc.

As a first step, field values were interpolated between measuring points in order to produce a continuous mapping of magnetic field, with contour lines connecting points of equal vertical magnetic induction. This map is called Field Coherence Pattern (FCP) because in presence of a source of field distortion, it shows a field pattern coherent with this source.

In particular, if the difference of measured values (mapped as FCP) of two different situations (e.g. an iPhone in the centre of the field with and without a Quantum Cell sticker) is calculated, it may also be mapped in the style of a FCP, and it yields a precise pattern of action of the sticker, provided that the magnetic field of the background and of the iPhone itself are constant (which is fulfilled within reasonable limits in the test settting applied here). From this difference mapping already, it may be concluded whether a device such as Quantum Cell is able to equalize magnetic field distortions, or not. If it shows a significant, coherent effect compensating for, or reducing the effect of the field source being tested before without a protection, then there is evidence for the ability of the protective device to improve the bio-compatibility of field distortions.

In the maps to follow, results of a. background measurements and b. measurements with technical field sources (such as a smart phone in conversation mode and a laptop computer in WiFi data transmission mode) and natural magnetic field distortions are presented and explained. Following the measurement results with and without the respective earthcalm device a difference map is introduced, representing the effect of the active technical source against the background field, and the effect of the earthcalm protective device against the distorted field, as well.

Traditional Scalar Resonator

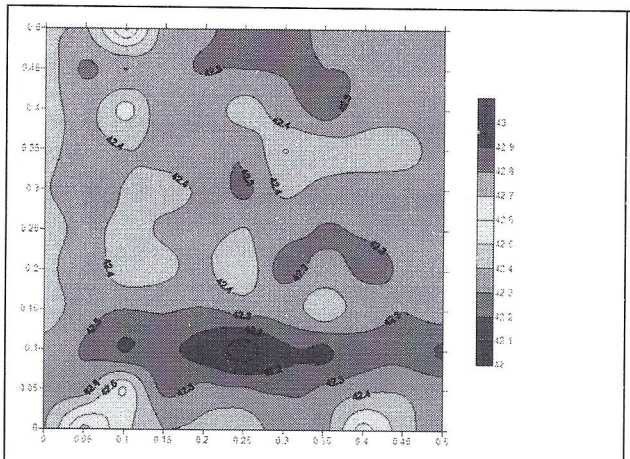


Fig. 13: Vertical magnetic induction of the background field. This map resembling a topographic map is called a Field Coherence Pattern (FCP). The scale denotes field values in Microtesla (μT). Generally, the values range from 42 to 43 Microtesla. In this magnetic background, normal vertical induction of 42.2 μT is restricted to certain "minimum zones" (blue color). In the larger part of the field, this value is exceeded for 0.1 to 0.2 μT. Co-ordinate axes are labelled with length in Meter. – ***Below:*** **Fig. 14** and **Fig. 15** representing the field under the influence of traditional Scalar Resonator: "fresh" sample (left) and "incubated" sample (right).

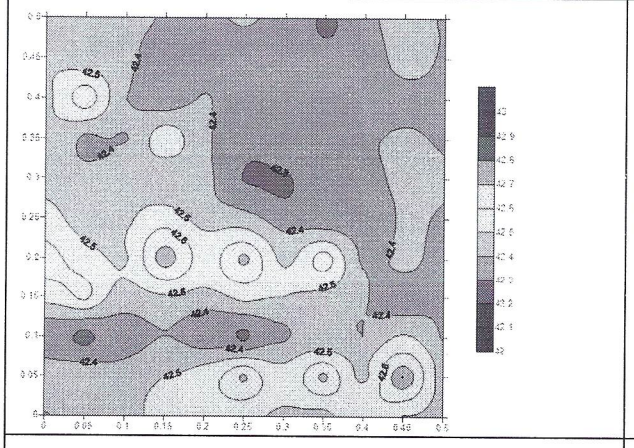


Fig. 16 (below): Differential effect (cf. text) of Scalar Resonator, "fresh" sample.

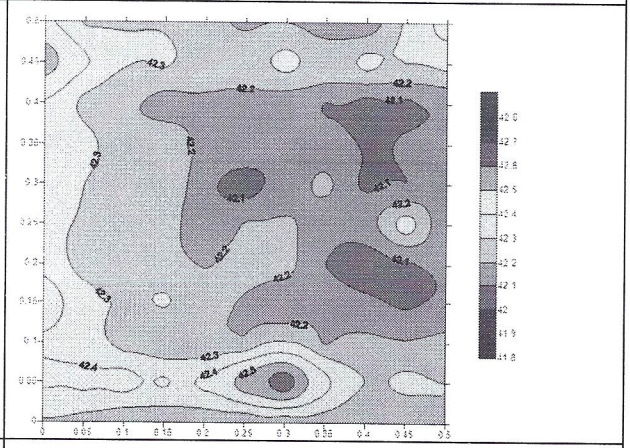
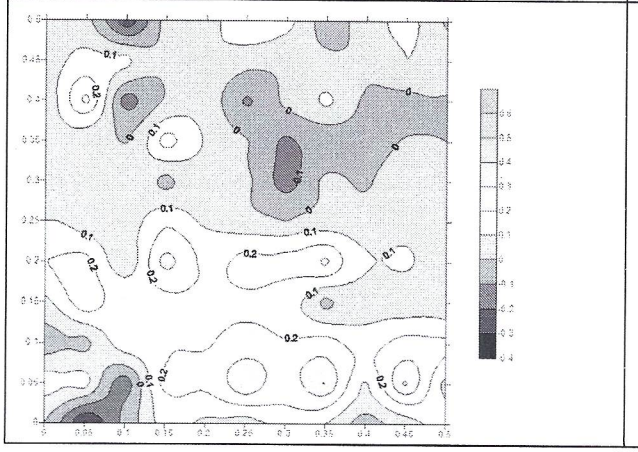
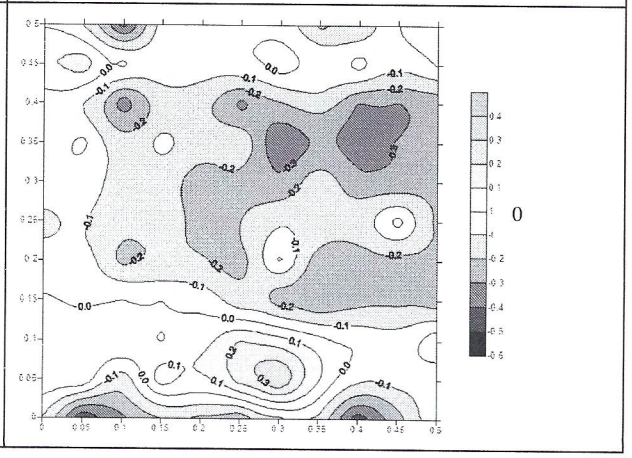


Fig. 17 (below): Differential effect of „"incubated" sample of Scalar Resonator.





The background field in fig. 13 exhibits an anomaly because of elevated values of vertical magnetic induction in large parts of the field. A geological fault zone stretches diagonally from the left lower to the right upper corner of the map. Values 0.1 to 0.2 μT above normal levels are indicated by green colors. Not magnetic field levels itself, but the sudden gradient from the smoother parts of the field to the "minimum zones" (blue color) would cause biological irritation.The green and yellow colors in figures 14 and 15 indicate that **traditional Scalar Resonator** "fills up" the "blue" minimum zones, resulting in **an overall smoother field.**

Figure 16 is a differential map, i.e. it represents, for each measuring point, and as an interpolation in between, the difference of values from fig. 14 minus background values from fig. 13. This difference indicates the **net effect of traditional Scalar Resonator.** The same applies to fig. 17 (mapping the difference "fig. 15 minus fig. 13") for the sample of Scalar Resonator that was subject to magnetic stress. Both figures indicate, in blue colors, a slight reduction or keeping constant of "average" background values. Yellow colors, in turn, indicate **a rise of low background values** in former "minimum zones". In this case, an "excess effect" can be noticed.

Results from figures 14 to 17 are clear indications for an **equalizing effect** of the Scalar Resonator.

Quantum Cell

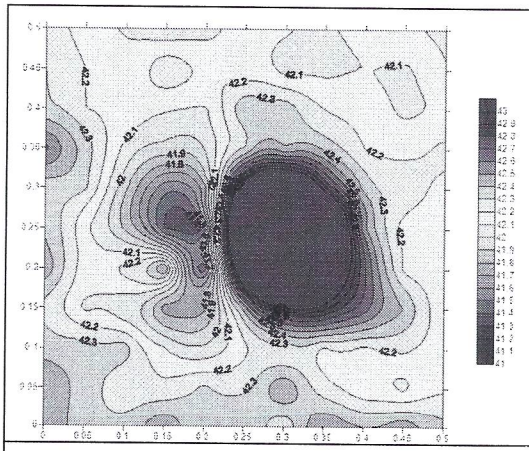


Fig. 18 (left): The values of vertical magnetic induction are completely different from the background (fig. 13) when a smart phone is operated in the center of the field. The red (elevated) and green (lower) values clearly indicate a dipolar structure of the magnetic system of the cellular phone. This structure is interrupted by an elevated value in position (0.15, 0.2) which causes a steep rising gradient from the neighbouring "green" values.

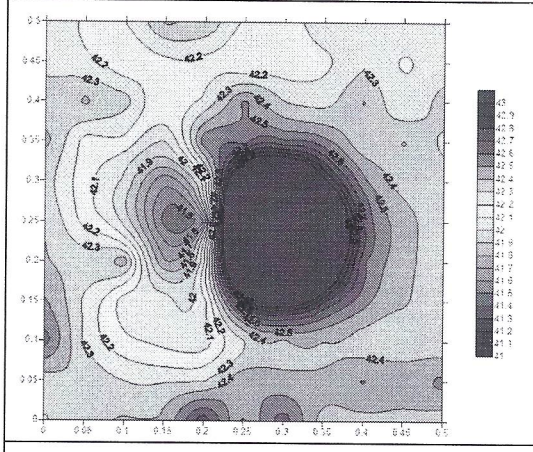


Fig. 19 (above): Field of smart phone in operation mode, with a fresh Quantum Cell sticker. There is a rest of anomaly in position (0.1, 0.2), but not so shart as before in (0.15, 0.2).

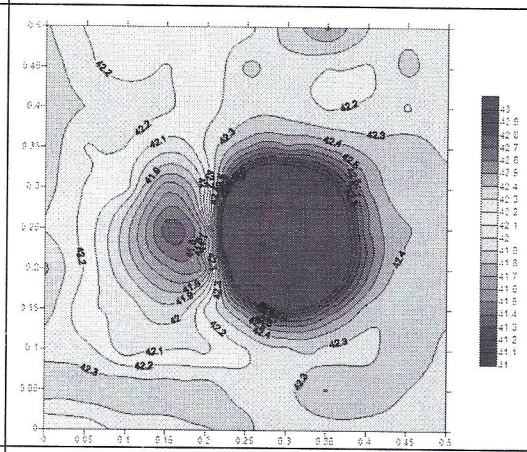


Fig. 20 (above): The measurement as in fig. 19 was repeated with an "incubated" Quantum Cell sticker. The anomaly in positions (0.15, 0.2) or (0.1, 0.2) resp. was completely ruled out.

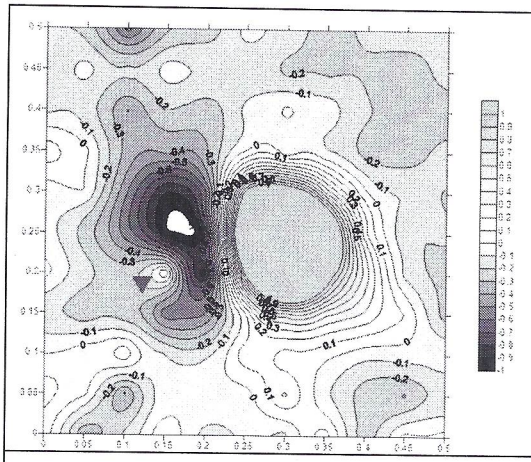


Fig. 21 (left): Difference map ("fig. 18 minus fig. 13") representing the net effect of the smart phone against the background. Of course, the blue and yellow lobes of the cellular are big anomalies, but they are inevitable for the operation of the smart phone. Yet the marked anomaly in the blue lobe (red arrow) causes a local irritation which is biologically extremely significant, because it is located at a distance of 10-15 cm from the center of the cellular, a place that falls within the head when phoning.

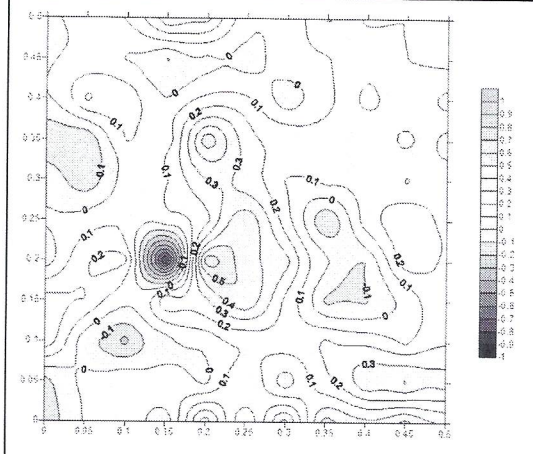


Fig. 22 (above): The difference mapping of the net effect of Quantum Cell ("fig. 19 minus fig. 18") reveals the compensation of the magnetic disruption marked in fig. 21.

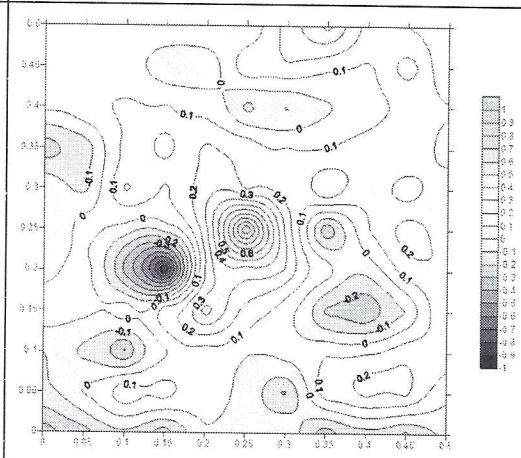


Fig. 23 (above): The same holds true for a Quantum Cell sample that had undergone magnetic stress treatment before application on the smart phone.

As with the Scalar Resonator in the geological fault zone, an **equalizing effect** against magnetic anomalies was found as **impact of Quantum Cell on the field of a smart phone in operation mode.**

Omega WiFi

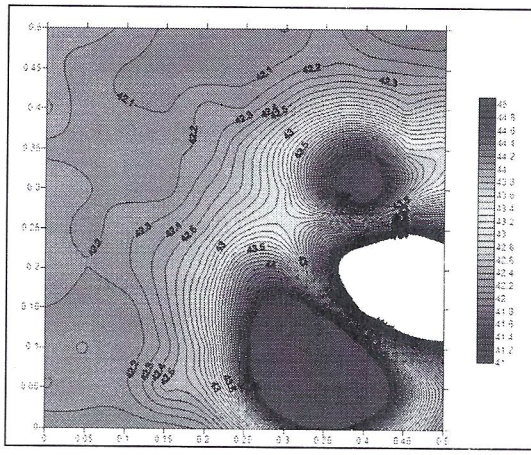


Fig. 24 (left): Values of vertical magnetic induction in the background field of fig. 13 with a notebook computer operated in WiFi transmission mode. Values above 45 μT were intentionally left blank in order to capture details in the rest of the map. Note that the area of (and around) the transmitting computer has strong magnetic gradients. In the rest of the field, the "surface" of magnetic induction values is rather smooth. In between, there is a big disruption (divergence) of magnetic field gradient, which means that there is a zone of biological stress (for the computer user).

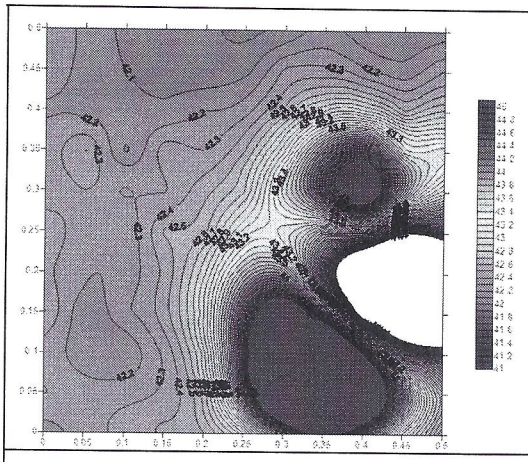


Fig. 25 (above): Results from the measurement repeated with Omega WiFi stuck in the computer port. At first sight, there is no pronounced difference to fig. 24.

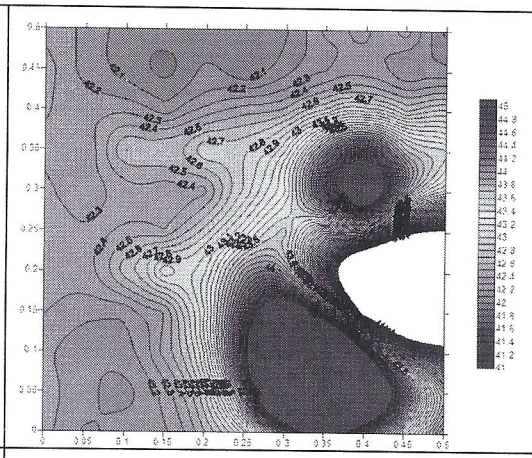


Fig. 26 (above): Repeated measurement with an incubated sample of Omega WiFi. A closer examination reveals some re-structuring of the field surrounding the computer, or WiFi transmitter, resp.

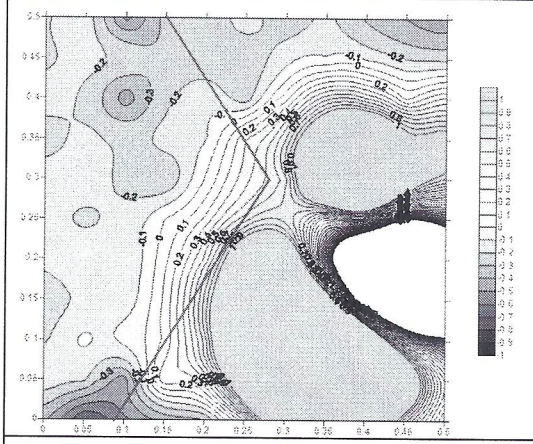


Fig. 27 (left): Difference map ("fig. 24 minus fig. 13") representing the net effect of the computer in WiFi transmission mode against the background. The magnetization of the computer cannot be avoided nor shielded here, but some attention should be paid to the magnetic field in the aperture of the transmitter (marked with red lines).

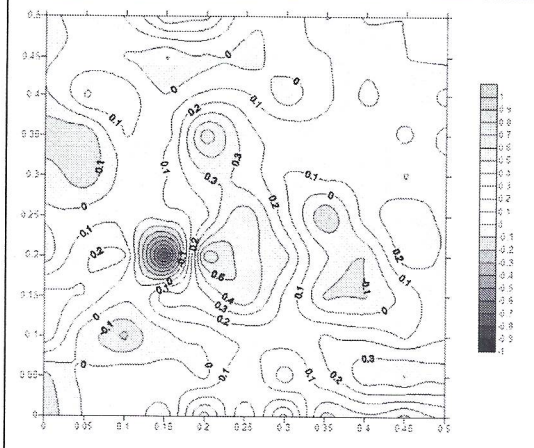


Fig. 28 (above): Difference mapping of the net effect of Omega WiFi ("fig. 25 minus fig. 24"). Most significant effects are found in the aperture of the WiFi transmitter.

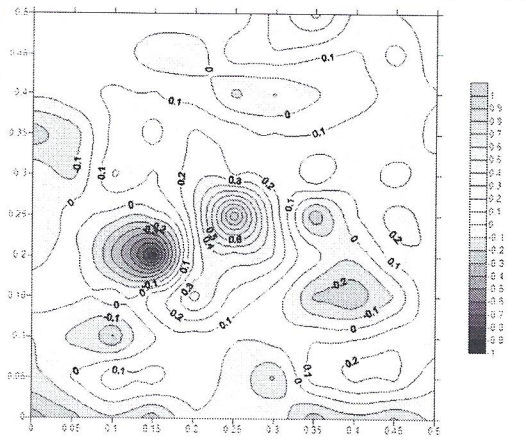


Fig. 29 (above): An "incubated" sample of Omega WiFi has virtually the same effect as a fresh one (cf. fig. 28).

The **effect of Omega WiFi** can be seen **within the aperture of the WiFi transmitter** from the difference mappings: There is a reduction of elevated values at the edge of the "yellow" zone in fig. 27, marked by dark blue spots in fig. 28 and fig. 29. Some "blue zones" with lower values in the left-hand part of the field in fig. 27 show, as an effect of Omega WiFi, a rise of field values for 0.1 to 0.2 μT. Again, marked effects in the aperture of the WiFi transmitter, and a tendendy towards equalization **clearly indicate the effectiveness of Omega WiFi.**

Scalar Home Protection System

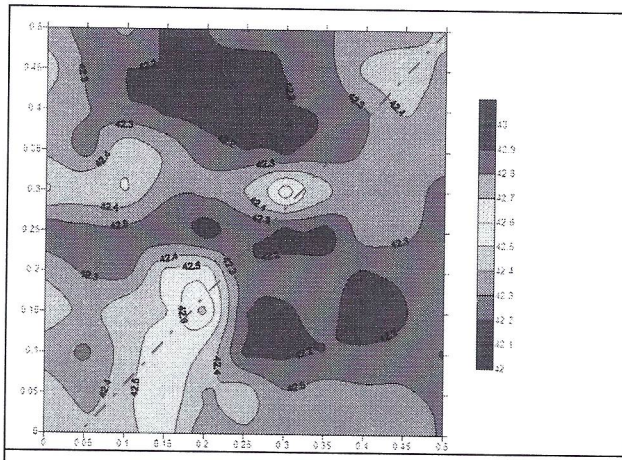


Fig. 30 (left): Map of the background field, after the base plug and the plug marked "Scalar" were plugged in the wall of the neighboring room. There is a distinct accumulation of anomalies along the diagonal (red dotted line), with average levels of vertical magnetic induction at normal levels of 42.1 to 42.3 μT in the rest of the field.

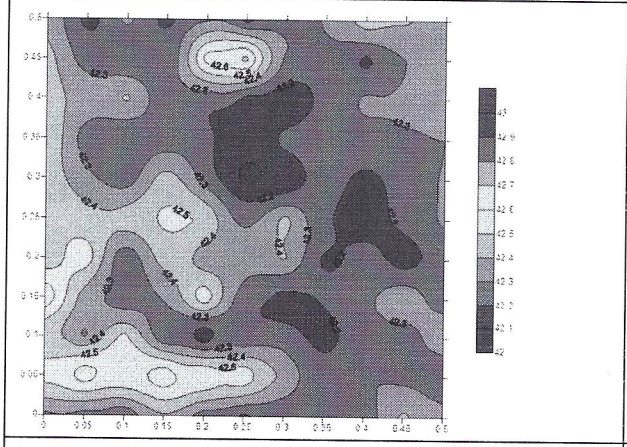


Fig. 31 (above): With the plug marked "System" activated additionally (the strongest step), magnetic anomalies are fading out.

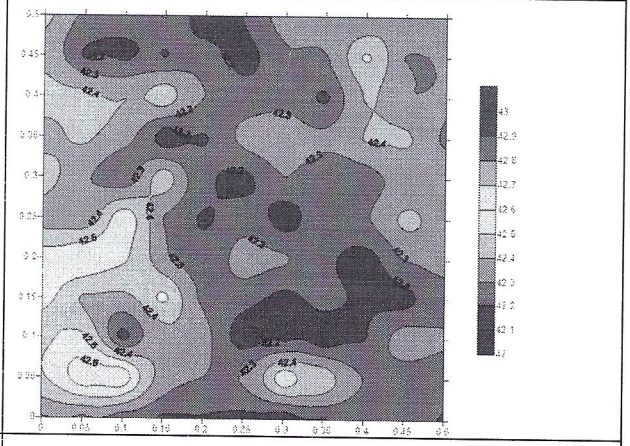


Fig. 32 (above): With a Home Protection set sample that went out of magnetic stress treatment, nearly all field values were normalized.

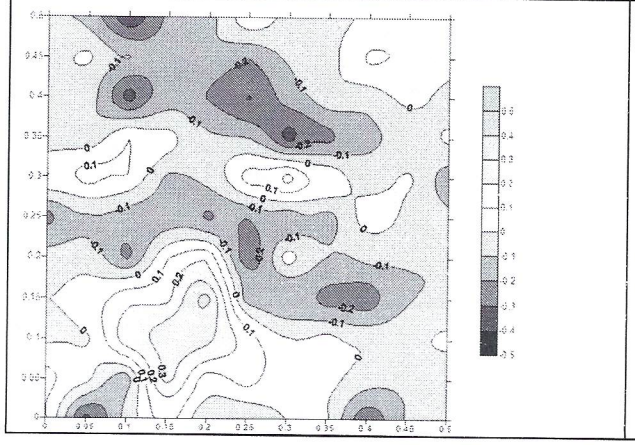


Fig. 33 (left): Difference map ("fig. 30 minus fig. 13") representing the net effect of activating steps 1 and 2 of Scalar Home Protection. It can be clearly seen that the accumulation of anomalies along the diagonal pointed out in fig. 30 is a result of the action of the Home Protection system (steps 1 + 2) upon the field of the geological fault zone. Anomalies are concentrated alog the fault line,the measured values in the rest of the field being normalized.

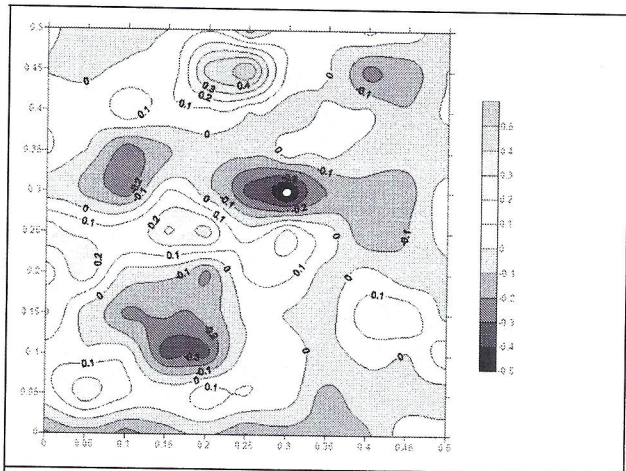


Fig. 34 (above): Difference mapping of the net effect of step 3 of Scalar Home Protection, compensating for excess effects of steps 1 + 2. Thus, the combination of all 3 plugs yields an optimum result meaning that magnetic anomalies fade out.

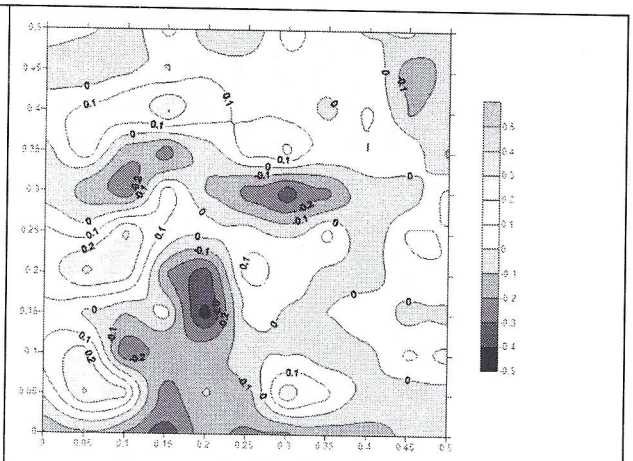


Fig. 35 (above): The same mapping as in fig. 34, for a sample of Home Protection system (plugs 1 to 3) that had undergone magnetic stress treatment. Its effect is virtually the same as of a "fresh" sample.

2.3 Opinion

Summing up, all tested products exhibit the capacity for coherent interaction with magnetic field anomalies of natural or technical origin. The impact of Scalar Home Protection is broadcast via the electric wiring of a house or appartment and unfolds its optimum effect after plugging in plug 3 (marked "System") compensating for magnetic anomalies in the field and excess effects that might have occurred with plug 2 (marked "Scalar").

Performance of "stressed" samples

Of all tested products, samples that had been subject to magnetic stress performed equally well as "fresh" samples. In fact, it seems that "stressed" samples gave slightly increased results compared to "fresh" ones. This may be due to a "conditioning" effect of stress treatment before measurement of performance, or to a "memory" effect in the field from testing fresh samples before the stressed ones. Anyway, without a positive effect of stressed samples, after removing the fresh samples from the test field (or test objects e.g. smart phone or computer in WiFi transmission mode), the quality of the field regarding magnetic anomalies would have been deteriorated.

Combining the results that earthcalm products proved their capacity to compensate for magnetic field anomalies in the way of smoothening magnetic field gradients, and stressed samples performed as well as fresh ones, the conditions for awarding the test label of IIREC are fulfilled.

The effects exerted on magnetic field anomalies by earthcalm products have an enormous biological relevance because magnetic stress strains biological systems. Therefore, a biological effect of earthcalm protective devices can be predicted for the human organism. This may be an improvement of bio-compatibility of EMF, or a vitalizing effect to the body, or an "immunizing" effect against EMF impact.

3. Heart Rate Variability (HRV) testing

3.1 Method of investigation

In order to give evidence that the application of earthcalm devices has a real biological effect, measurements of Heart Rate Variability (HRV) were conducted with 4 test persons.

HRV is an established medical method based on the slight variability that any sound heartbeat exhibits in ist rhythm. The measurements are performed as for conventional electrocardiogram (ECG), but the results are evaluated in a specific way to reveal a person's regulation capacity and stress/relaxation condition.

HRV measurements were conducted at BEAM institute, Vienna. The HRV system applied there was developed by Franz Senekowitsch, M.D., of Biomedical Institute of Graz Medical University. The vital data of test persons are given in **table 2.**

person #	sex	age
1	female	55+
2	female	29
3	female	48+
4	male	33+

Table 2: Data of HRV test persons

A short description of the parameters that were evaluated are provided in the following

Glossary

Reference: Before any stress test or test with a protective device, the original condition of the test person was measured. In the next test run, the person was exposed to technical stress. In the results table, the kind of stressor is noted in column 4. After having captured the person's response to the impact of the stressor, an earthcalm protective device was activated. Again, the biological response to stress was measured, but this time with the protective effect of the earthcalm device denoted in column 5.

R (regulation) value: The R value denotes, within a scale from 0 to 100 (i.e. no regulation till optimum regulation) the present regulation capacity of the person in test. 50 % regulation are average. The R value is presented in column 6.

R (regulation) effect: For every stress measurement or relief measurement (measurement with protective device), the shift in R value against the foregoing test is calculated in column 7.

Balance: This quantity measures the stress level of a person in a system of stress values and relaxation values from 0 to 100 each. Thus, in column 8 is indicated whether the given number denotes an activated condition, or a relaxed one.

Health risk: This is an estimation of impairment of a person's health due to his/her regulation capacity, within a field from total relaxation to total stress. Given a sound stress level balance, there may be "normal" regulation, "eustress" (with stimulation prevailing) or „exhaustion". Off balance are stress conditions with sympathetic autonomous nervous system (SNS) prevailing, and relaxation conditions with parasympathetic ANS (PNS) prevailing. The health risk condition of a person in test is characterized in column 9 of the results table. It is the basis for the graphic representation of the tested condition in the results section.

Total power: This quantity is calculated (in column 10) in ms^2 from a power spectrum of all regulation signals ranging from 0.003 Hz to 0.40 Hz. It sums up the total power of the nervous system. Normal values range from 2,400 to 4,400 ms^2.

(Total) **power effect:** For every stress measurement or relief measurement (measurement with protective device), the shift in total power against the foregoing test is calculated in column 11.

Conducting the tests

In the test room, the test person with electrical contacts attached to his/her body was sitted in a comfortable chair. The data derived from the body were transferred to a notebook computer for evaluation, results showing up immediately on the computer monitor. Each test session lasted 5 minuted. Afterwards, a test report was generated containing the data of the test person, time of test run, and test results in numerical and graphical representation.

For stress tests, a stressor was placed near the test person's body or around the test chair. Stressors were:

a. a smart phone (iPhone by Apple Computers) in transmission mode,
b. a notebook computer (MacBook by Apple Computers) in WiFi transmission mode,
c. a simulated geopathogenic zone (simulation was performed by two bar magnets of a surface induction of 7 mT approx. in a rectangular configuration),
d. a lamp containing an energy saving bulb, with a transformer posted on the floor as an additional stressor.

Following the stress test, a relief test was conducted with ongoing impact of the stressor, but additionally an appropriate earthcalm protection was activated: for a - Quantum Cell, for b - Omega WiFi, for c - traditional Scalar Resonator, for d - Scalar Home Protection (steps 1 + 2 were plugged in between test runs of April 3 and April 11, and step 3 activated on April 11 after the first "relief" measurement.had been conducted. So, the biological effects of protection steps 1 +2 and +3 were captured). If there were more stress and relief measurements following one reference measurements, all their results are grouped together.

The following series of photographs illustrates the various test situations.

Fig. 36:

HRV test person in test chair. The wiring derives the ECG signal from the body to the computer for further processing.

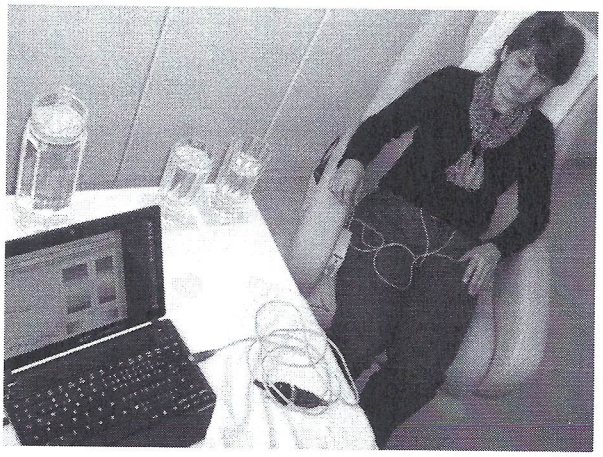


Fig. 37:

Complete HRV test setting with test person, wiring and notebook computer. Test data are analyzed by a specific software and results monitored on the computer screen.

Fig. 38:

Testing a smart phone in transmission mode on the body of the test person.

Fig. 39:

Test person in a test session with laptop computer in WiFi transmission mode.

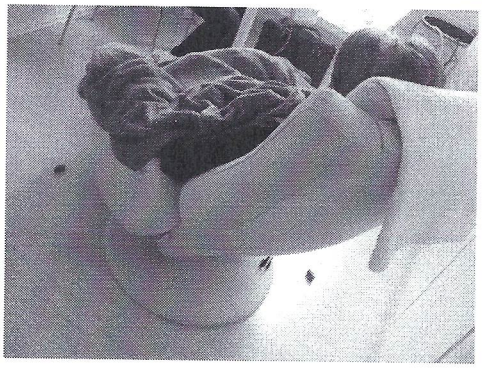


Fig. 40:

Testing the impact of a magnetic disruption (e.g. geopathogenic zone) simulated by use of two bar magnets on the floor in rectangular position around the test chair.

Fig. 41:

In this setting, the impact of the lamp with an energy saving bulb in it, and of the transformer on the ground was tested.

The essence of results was represented in the **"health risk" diagrams** that are included in the results section for the individual products. The meaning of the fields and symbols in the cake diagram, as well as of the original (German) notes is explained in fig. 42. The explanations given there are valid for all the diagrams in the results section.

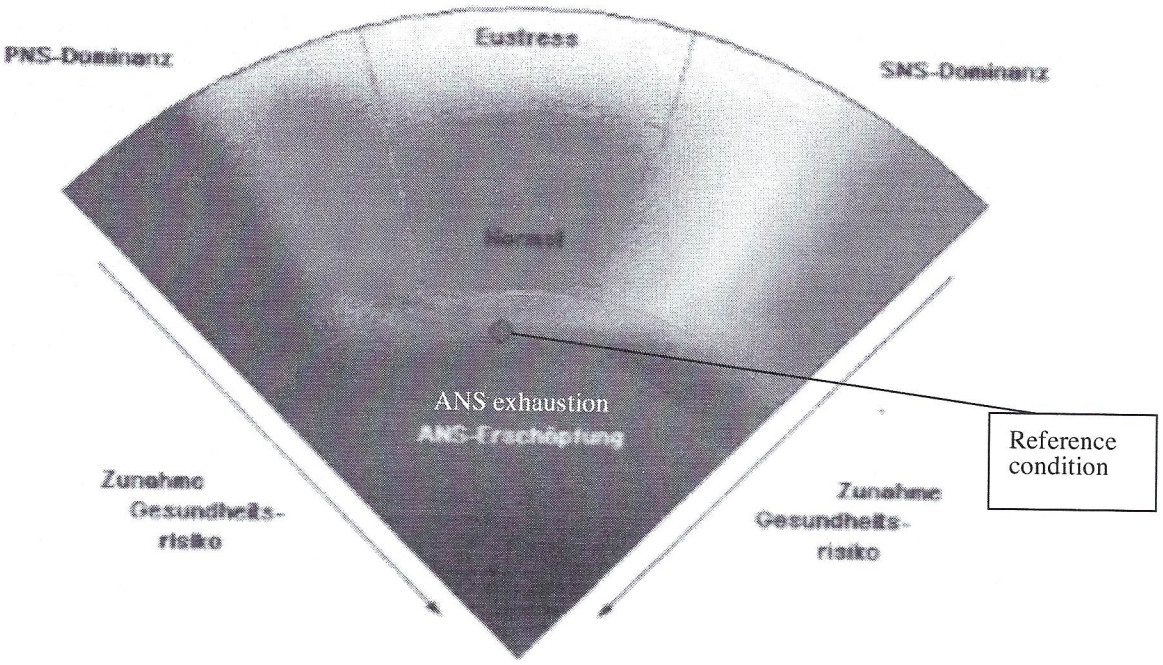


Fig. 42: Mapping of health risk in a cake diagram. On top, there is a wide range from **PNS prevalence** to **SNS prevalence**, representing an optimum body regulation. Down to the bottom, there is an **increasing health risk (black arrows)**. The **normal** condition in the center field may shift either to **Eustress** (in case of excellent regulation) or to **ANS exhaustion** (in case of insufficient regulation). – **Reference conditions** are represented as **blue dots**, actual **test conditions** in stress tests or relief tests (with protective devices) as **red dots**. In the latter case, *the blue dot representing the test person's reference condition is always included.* For every test run, in the following results section three diagrams are figured: one of the *reference condition*, one of a *stress test* and one of a *relief test.* If there were several stress and relief tests following one reference measurement, the results of all of these are grouped together.

3.2 Results and assessment

In this section, the results of all HRV tests conducted are represented

(i) in a comprehensive table ,

(ii) in a compilation of health risk diagrams for all test situations.

1	2	3	4	5	6	7	8	9	10	11
est erson	**date**	**clock time**	**ref./ stressor**	**EarthCalm device**	**R value**	**R effect**	**balance**	**health risk**	**total power**	**power effect**
	2012	hr:min		activated	%	%	%		ms^2	ms^2
1	Apr 03	11:42	ref.		44		relaxed 8	exhaustion	1520	
		12:02	iPhone		36	-8	activated 10	exhaustion	913	-607
		12:14	iPhone	Quantum Cell	34	-2	activated 26	exhaustion	1416	+503
2	May 02	11:40	ref.		54		relaxed 27	exhaustion	2548	
		11:46	geopath.		48	-6	relaxed 12	exhaustion	1672	-876
		11:53	geopath.	Trad. Scal. R.	58	+10	relaxed 44	PNS prev.	3218	+670
		12:04	energy		47	-7	activated 38	exhaustion	1944	272
		12:31	saving bulb	Home protection	63	+9	relaxed 60	PNS prev.	3621	+1677
3	May 02	10:17	ref.		65		relaxed 69	PNS prev.	3246	
		10:26	iPhone		60	-5	activated 17	normal	2165	-1081
		10:53	iPhone	Quantum Cell	66	+6	relaxed 34	to PNS p.	3168	+1003
3	Apr 03	11:05	ref.		65		activated 13	normal	2703	
		11:23	WiFi		81	+16	activated 27	eustress	5596	+2893
		11:30	WiFi	Omega WiFi	78	-3	relaxed 5	normal	4386	-1210
3	Apr 11	10:06	ref.		59		activated 19	normal	2356	
		10:25	geopath.		67	+8	activated 14	exhaustion	2003	-353
		10:42	geopath.	Trad. Scal. R.	71	+4	relaxed 22	normal	3218	+1215
3	Apr 11	13:34	ref.		55		activated 21	normal to exh.	2023	
		13:46			52	-3	relaxed 37	exhaustion	1470	-553
		13:52	energy	Home protection	59	+7	relaxed 5	normal	2234	+764
		14:04	saving bulb	+"system" unit	71	+12	activated 33	normal	4170	+1936
4	Apr 03	13:03	ref.		61		relaxed 54	PNS prev.	2959	
		13:12	iPhone		50	-11	relaxed 12	exhaustion	1889	-1070
		13:25	iPhone	Quantum Cell	57	+7	activated 19	normal	2992	+1103
		13:33	WiFi		61		activated 37	SNS prev.	4221	+1229
		13:53	WiFi	Omega WiFi	67	+6	relaxed 22	normal	4390	+169
4	Apr 11	10:57	ref.		62		relaxed 49	PNS prev.	2857	
		11:05	geopath.		59	-3	activated 18	normal	3022	+165
		11:25	geopath.	Trad. Scal. R.	59		relaxed 15	normal	3199	+177
4	Apr 11	12:43	ref.		52		activated 6	exhausted	1978	
		13:03	energy		73	+21	activated 64	SNS prev.	7029	+5051
		13:22	saving b.	Home protection	89	+16	activated 21	eustress	9826	+2797

Table 3 (left):

Comprehensive table of HRV results.

Explanations are given in the Glossary.

Red colors denote stress, green colors relaxation, and blue colors eustress.

In the **detailed mappings of health risk results** to follow, each time the first row offers the result of the reference measurement (i.e. the original condition of the test person). The next row represents results from stress testing (with a technical field source) and from relief testing (with an earthcalm protective device).

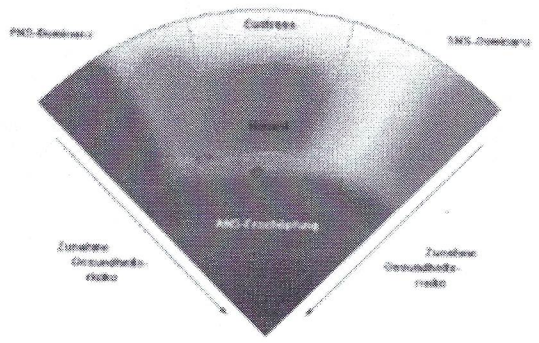
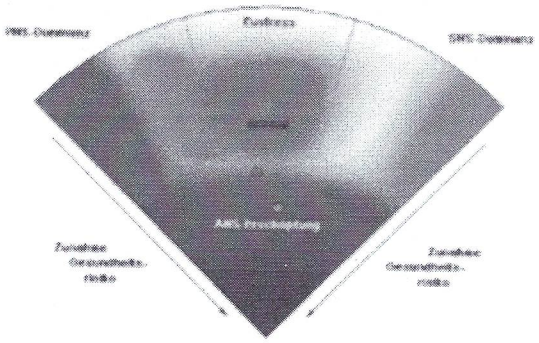
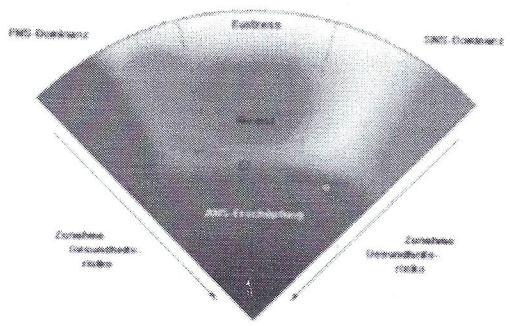


Fig. 43: Testing iPhone/Quantum Cell

Test person #1, April 3, 2012

a. (left) reference; b. (left below) stress test with iPhone; c. (right below) relief test with iPhone + Quantum Cell





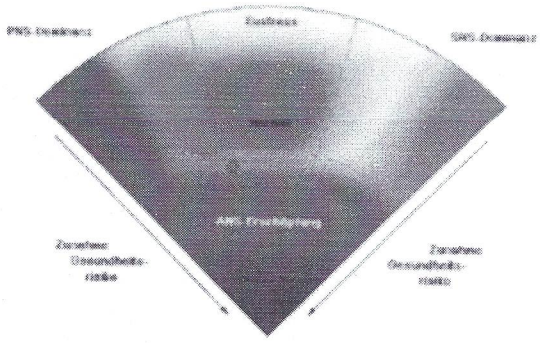
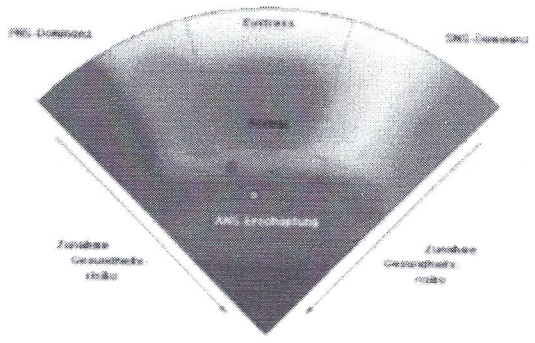


Fig. 44: Testing geopathic stress/trad. Scalar Resonator and energy saving bulb/Scalar Home Protection

Test person #2, April 11, 2012

a. (left) reference; b. (left below) simulated geopathic stress test; c. (right below) relief test with simulated geopathogenic zone + Scalar Resonator; d. (left, top next page) stress from energy saving bulb with transformer; e. (right, top next page) the same with Home Protection



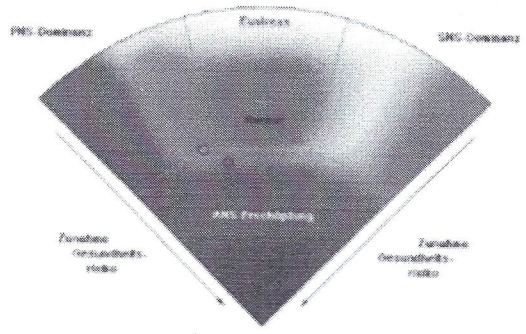
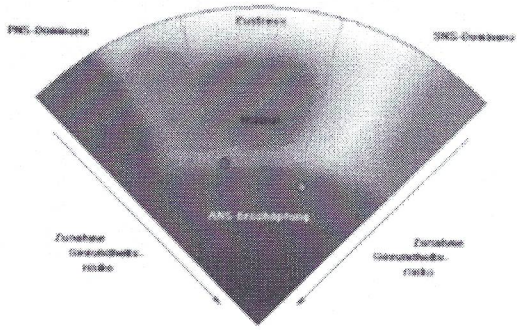
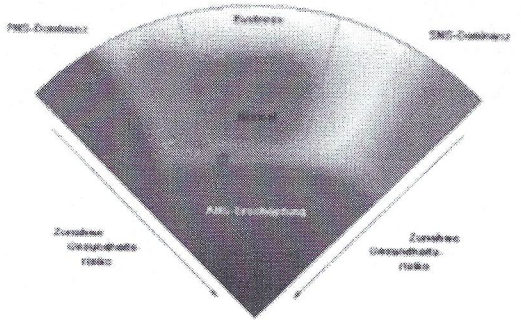


Fig. 44 d and e:





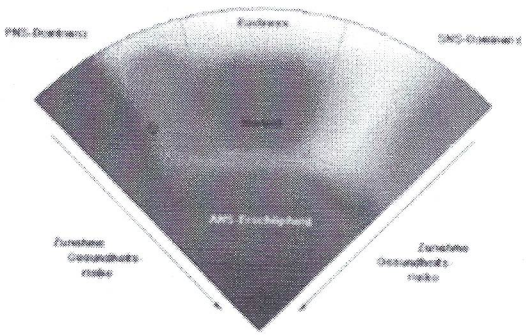
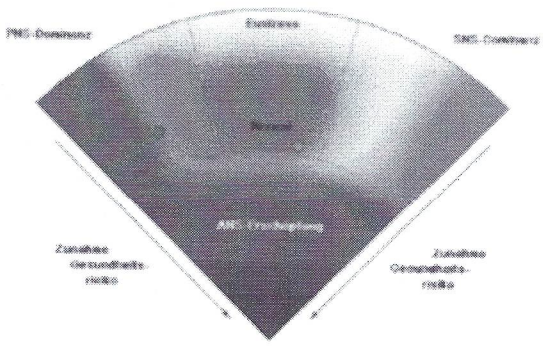
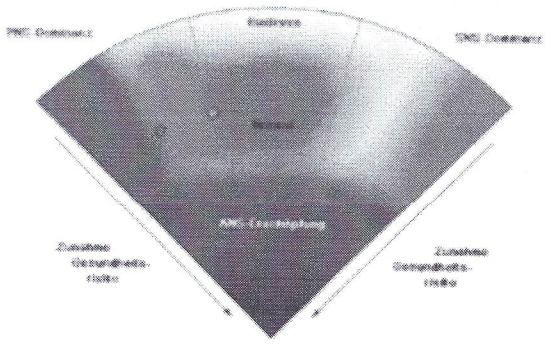


Fig. 45: Testing iPhone/Quantum Cell

Test person #3, April 3, 2012

a. (left) reference; b. (left below) stress test with iPhone; c. (right below) relief test with iPhone + Quantum Cell





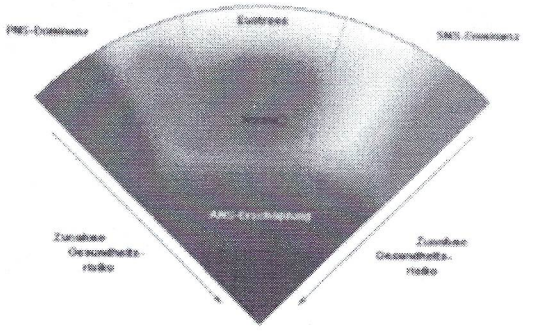
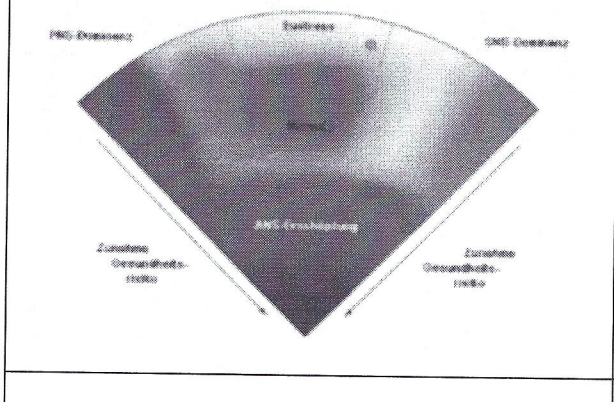


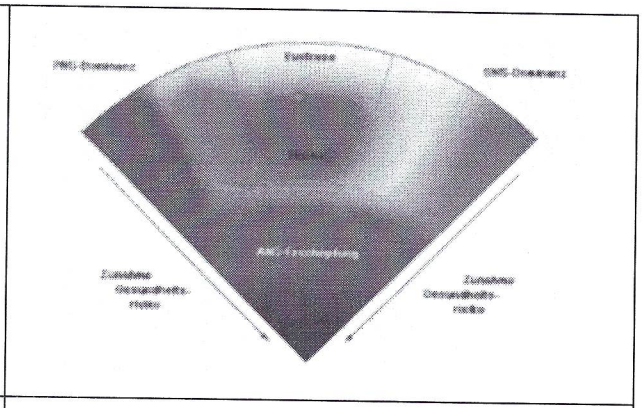
Fig. 46: Testing notebook computer in WiFi transmission mode/Omega WiFi

Test person #3, April 3, 2012

a. (left) reference; b. (left, top next page) stress test with WiFi transmission; c. (right, top next page) relief test with WiFi transmission + Omega WiFi

Fig. 46 b and c:





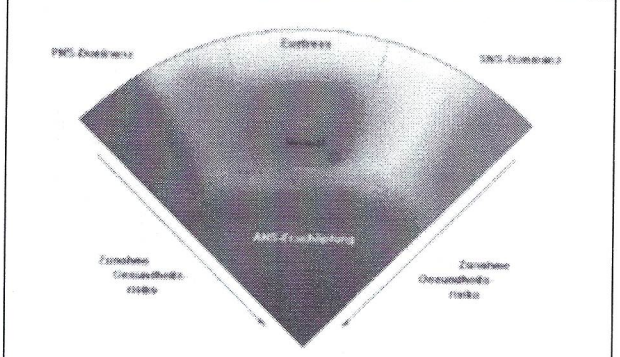
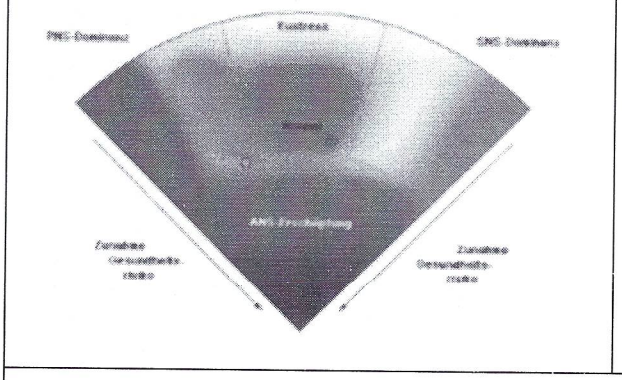


Fig. 47: Testing simulated geopathic stress zone/trad. Scalar Resonator

Test person #3, April 11, 2012

a. (left) reference; b. (left below) geopathic stress test; c. (right below) relief test with simulated geopathogenic zone + trad. Scalar Resonator



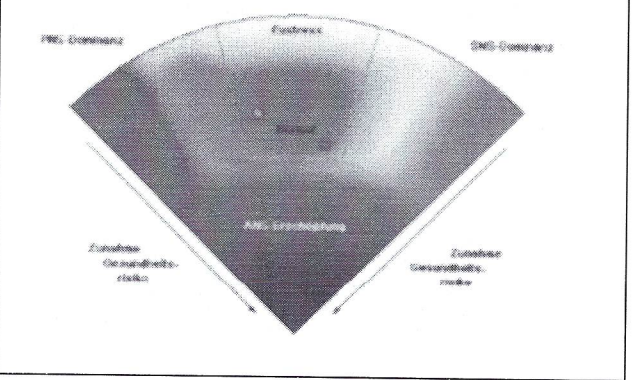
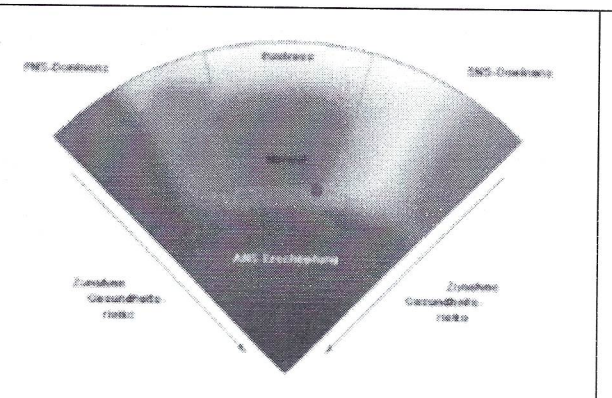
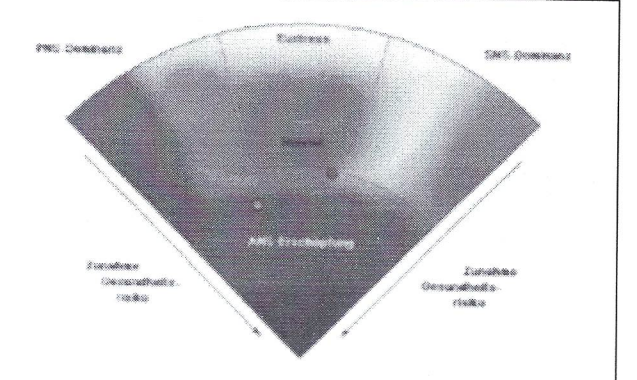


Fig. 48: Testing energy saving bulb (ESB) with transformer/Scalar Home Protection – Test person #3, April 11, 2012

a. (left below) reference; b. (right below) stress test with ESB; c. (left, top next page) relief test with ESB + Home Protection (plugs 1 + 2); d. (right, top next page) relief test with ESB + Home Protection (+ plug 3)





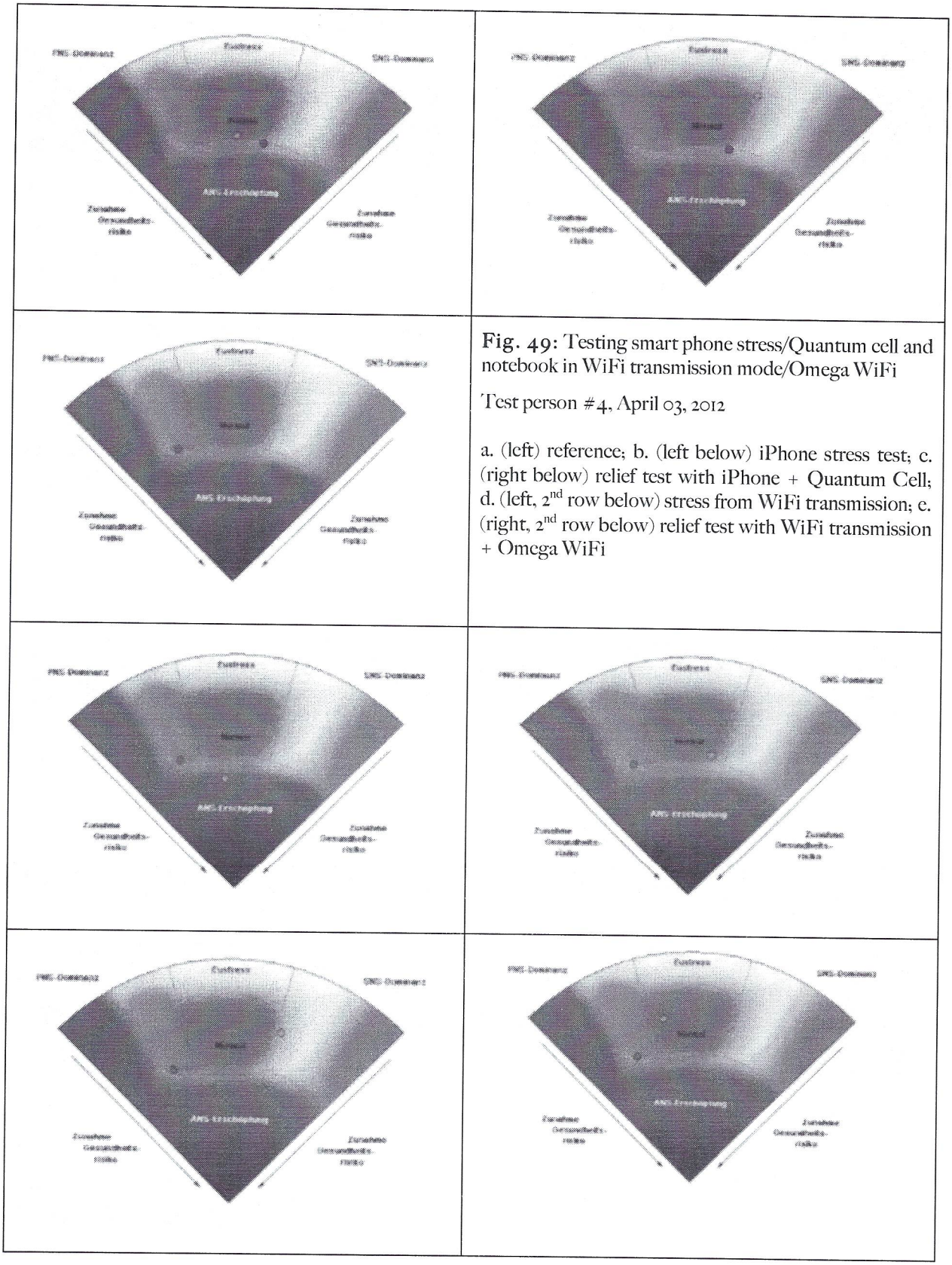


Fig. 49: Testing smart phone stress/Quantum cell and notebook in WiFi transmission mode/Omega WiFi

Test person #4, April 03, 2012

a. (left) reference; b. (left below) iPhone stress test; c. (right below) relief test with iPhone + Quantum Cell; d. (left, 2nd row below) stress from WiFi transmission; e. (right, 2nd row below) relief test with WiFi transmission + Omega WiFi

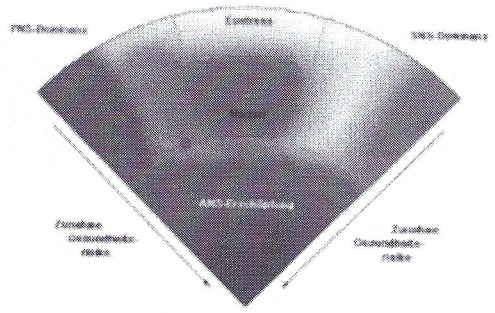
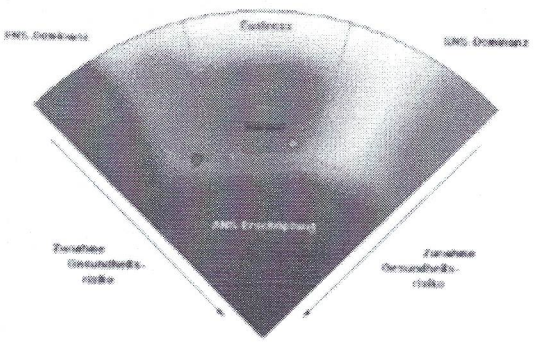
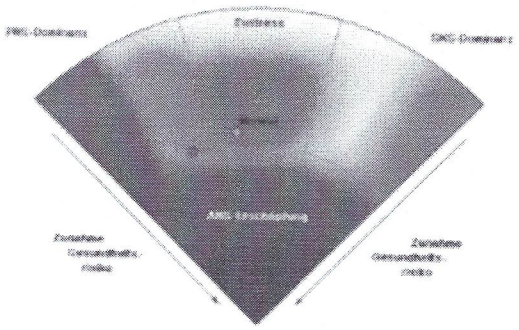


Fig. 50: Testing simulated geopathic stress zone/trad. Scalar Resonator

Test person #3, April 11, 2012

a. (left) reference; b. (left below) geopathic stress test; c. (right below) relief test with simulated geopathogenic zone + trad. Scalar Resonator





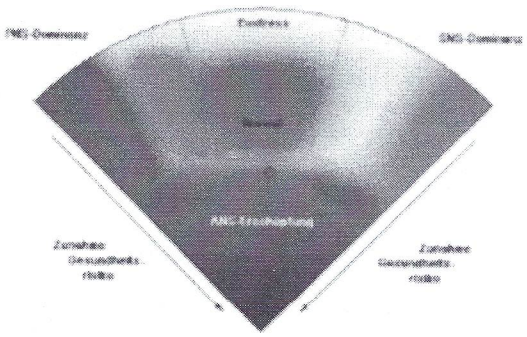
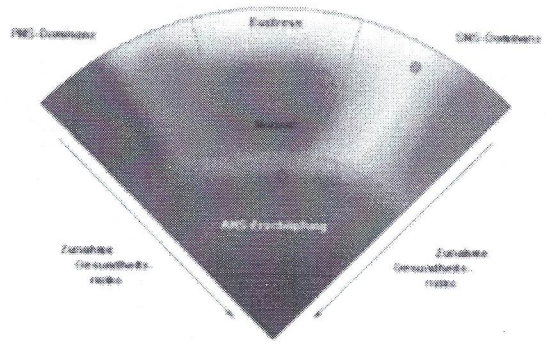
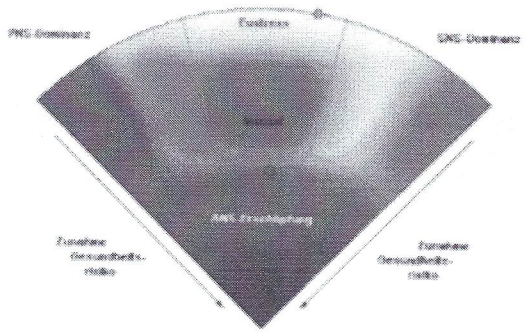


Fig. 51: Testing an energy saving bulb (ESB) with transformer/Scalar Home Protection

Test person #4, April 11, 2012

a. (left) reference; b. (left below) stress test with ESB; c. (right below) relief test with ESB + Home Protection (plug 3 activated before begin of data registration)





3.3 Opinion

HRV tests were conducted with 4 test persons of both sexes, various ages, and various reference conditions, being exposed to 4 different electromagnetic stress conditions, with 4 appropriate earthcalm products as remedies. As an overall result, it can be stated that **in the various test situations the application of an earthcalm protective device resulted in a gain in power of autonomous nervous system (ANS).** The greatest boost of ANS total power was due to the activation of Scalar Home Protection, step 3 (the plug marked "System").

There was only one exemption when a test person in an *activated* condition went to *eustress* on exposure to a notebook computer in WiFi transmission mode (with an extra high power level). The *Omega WiFi* device *took her back to a normal condition*, with an *optimum slightly relaxed balance*.

Generally, the impact of earthcalm devices (and of stressors, as well) upon the R (regulation) value is not so pronounced because *R represents a long-term condition of body regulation*. However, from many test being run we derive that **earthcalm products tend to act as a counter-balance against imbalances of body regulation** (activation or relaxation).

A typical reaction pattern to earthcalm application is that persons being exhausted from stress exposition would go back to normal condition. But this pattern is highly personal. In some cases persons exhausted from stress fell into a relaxed, parasympathetic condition upon application of earthcalm. Another pattern showed up when relaxed persons were activated by stressors from a parasympathetic to a normal condition, and the earthcalm device took them back to relaxation. Activated persons, when exposed to stressing conditions, may go to eustress, or a sympathetic condition, being taken back to a normal, or a eustress condition resp. by earthcalm. It may be noted that with activated persons, a stressor may boost ANS total power.

HRV tests conducted with 4 test persons confirmed a reliable positive effect of earthcalm EMF protection on the human regulation system, particularly ANS total power.

For scientific validation of the biological effectiveness of a specific product, a pre-study with a sample of 10 persons can be recommended, and a full study with a sample of 30 persons (at least) should be conducted.

4. Concluding evaluation, test seal award

By an **objective physical method** (i.e. measurement of the vertical magnetic induction), the **effect of 4 representative earthcalm products on interruptions in the static (DC) and extremely low frequency (ELF) magnetic field** was measured. The source of interfering fields was either a natural one (a geological fault zone) or a technical one (an operating smart phone, a laptop computer in WiFi transmission mode).

The measurements were first conducted for the original condition, and afterwards repeated with an appropriate earthcalm device. Another measuring series was run with a sample of the respective earthcalm device that had been exposed to an extremely inhomogeneous magnetic field for 72 hours.

Magnetic field interruptions were influenced by earthcalm products in the sense of an equalization of magnetic field gradients, and a normalization of magnetic field values.

Concerning the **assessed impact** itself, its **extent** (amounting from 0.1 Microtesla up to a few Microtesla) seems **biologically very significant**. Magnetic field deviations of tenths of Microtesla, though apparently weak compared to the natural field strength of 50 μT approx., have the same order of magnitude as the natural fluctuations of the geomagnetic field in time. **Biological systems are optimized to a very sensitive detection of variations in this range.** For performing this, the human body is equipped with myriads of magnetite crystals as tiny magnetic field sensors in the cerebral membrane, the order of magnitude being 100 million sensors per gram membrane tissue. Moreover, the biological impact is not so much determined by the absolute strength of magnetic field as by the course of field values, i.e. the structure of the field. **These gradients grow smoother under the effect of earthcalm protective devices.**

Because magnetic interferences of the kind assessed in this investigation exert a biological irritation [1], one has to conclude that **magnetic fields with interferences from computers, cell phones, or even natural sources (e.g. geopathogenic zones) grow in bio-compatibility** when an earthcalm device is applied.

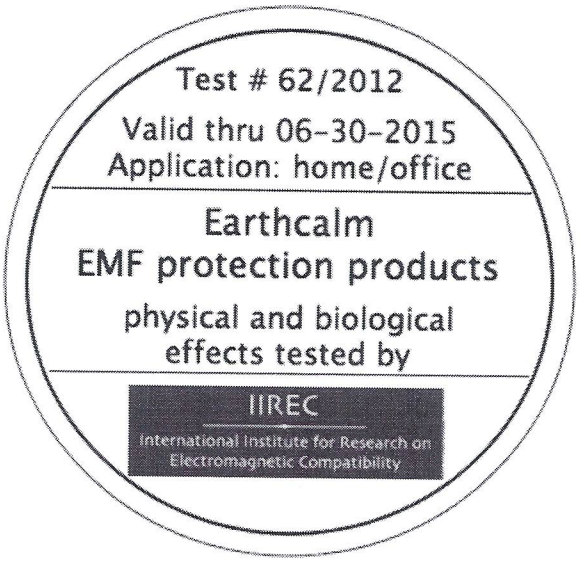
In all cases tested, the samples that went out of magnetic stress treatment performed equally well as fresh samples.

In an additional series of measurements, the **biological impact of earthcalm products on the heart rate variability (HRV) of persons was tested** combined with exposition to stressors. The devices under test exhibited **a distinct capacity of rising the total power of autonomous nervous system** and **a tendency to counter-balance imbalances in body regulation.**

The **stress response** of test persons was **taken back to normal regulation conditions**, or in case of *activated, well-regulated persons* a *"eustress" condition* might occur due to earthcalm.

Explicit **"power boost" responses** were found with 3 test persons **upon activation of the Scalar Home Protection system** (3rd step of activation)

[1] Medinger W.: Significance of weak static and ELF magnetic fields and their gradients with respect to electromagnetic biocompatibility. – A new method for precise localization of techno- and geogenic stress zones. IIREC reports, no. 02/2005, Graz (Austria).



With the physical tests of magnetic field equalization, including magnetic stress test, being passed and the biological tests of heart rate variability (HRV) being passed as well, the EMF protection products based on scalar resonance technology by EarthCalm, Inc., are awarded the test seal of IIREC.

The manufacturer is entitled to attach or print this test seal to the product, to its packing and to product documents.

It is up to the manufacturer to care for constant product quality and to test it regularly.

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International Institute for Research on Electromagnetic Compatibility
on a bio-physical foundation