



INTERNATIONALE GESELLSCHAFT FÜR ELEKTROSMOG-FORSCHUNG IGEF LTD  
INTERNATIONAL ASSOCIATION FOR ELECTROSMOG-RESEARCH IGEF LTD  
IGEF CERTIFICATION CENTRE

# REPORT

**on the biophysical testing**

**of the SPIRO CARD LEVEL 3; card size 9 x 9 cm in PVC**

regarding the protective effect with electromagnetic radiation

e.g. through Wi-Fi or WLAN (Wireless Local Area Network), mobile phone transmitters,  
mobile phones, Smartphones, DECT cordless telephones,  
radio and television broadcasting transmitters  
and other wireless communication systems.

**Customer:**

**NOXTAC Technologies; Sun Plaza; 401 M; Oranjestad; Aruba; Dutch Caribbean**

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## 1. Problem description

The diverse use of modern technology is not possible without electrical power and high frequency electromagnetic radiation. A wide range of equipment and systems have been produced for the generation and distribution of the electrical energy; power stations, transformer stations, high and medium-voltage lines, supply cables - right through to our domestic installation. This low frequency network for the supply of power generates electrical and magnetic fields, and therefore a significant proportion of the electromagnetic environmental pollution, which is referred to in general as electrosmog. All electrical and electronic devices also generate electrosmog.

Today, wireless networks are utilised in countless applications, incl. in industrial production, logistics and medical engineering. Private use of these technologies is also commonplace: Mobile end devices such as mobile phones and PDAs are constant companions for many people. Cordless telephones, Bluetooth, Wireless LANs, radio-controlled garage door openers, remote-controlled devices and machines are all based on wireless communication systems. It is conceivable that the use of wireless network technologies will increase significantly in the future, and that new application fields will open up.

Powerful transmitters radiate electromagnetic waves for mobile telephony, radio and television, radar, military surveillance, data transfer, directional radio, etc.: High frequency electrosmog that we are no longer able to avoid.

At the end of May 2011 the World Health Organisation WHO classified high frequency radiation as "possibly carcinogenic". To this end an expert group met at the International Agency for Research on Cancer IARC in Lyon. 31 specialists from 14 countries came together in Lyon to evaluate "almost all available scientific evidence".

Pollution caused by high frequency electromagnetic radiation results in complaints including poor quality of sleep, a loss of vitality, headaches, poor concentration, tinnitus, decreased physical and psychological resilience, as well as an increased strain on the heart and circulatory system. According to the results of international research the list also encompasses serious illnesses such as an increased risk of cancer, genetic alterations and changes to the immune system and the central nervous system.

Today's typical radiation level technically generated through radio communication in cities exceeds the natural vital electromagnetic background radiation by tens of millions and even billions.

This development has led to us all experiencing constant exposure to electromagnetic environmental pollution everywhere, in a form and intensity that has never existed before. The danger of this new type of environmental pollution lies in the fact that our body's own information system also works with natural electromagnetic signals - although the energy level of these is a million times weaker! This flooding by technical electromagnetic fields and radiation therefore causes numerous biological disturbances in nature, as well as in animals and humans, through the coupling of technical electromagnetic signals in the natural environment and in the information system of our cells, bodily systems and organs.

Each person reacts differently to the electromagnetic pollution that occurs within their environment. This is dependent on the one hand on the intensity and duration of the frequencies and modulations that arise, and the individually resultant combination effects.

It also depends on the person's disposition, any possible pre-existing conditions and existing damage to health, their immune status and the ability of their organism to compensate for any strains and stresses that arise, as well as their resistance to external influences.

Despite the health risks posed by high frequency electromagnetic radiation, which have been proven by numerous research findings, it is not possible to imagine today's society functioning without the use of electrical and electronic devices such as mobile phones, as well as the mobile telephony transmitters that these require. Understandably, the considerations of those affected therefore tend towards how it is possible to better protect oneself against the effects of electromagnetic radiation.

The objective of the following investigation was therefore to assess whether and to what extent the SPIRO CARD LEVEL 3 is suitable for providing protection against the harmful effects of high frequency electromagnetic radiation and electrosmog.

## **2. Investigation of the SPIRO CARD LEVEL 3 with respect to its protective effect against electromagnetic radiation, e.g. by mobile phone transmitters, Wi-Fi or WLAN (Wireless Local Area Network), mobile phones, Smartphones, cordless telephones, radio and television broadcasting transmitters and other wireless communication systems.**

For the purpose of our investigation documented here, the SPIRO CARD LEVEL 3 was tested by ten test subjects of both genders in various test situations, with respect to its protective effect against health-endangering disturbances caused by high frequency electromagnetic radiation and electrosmog. The test subjects selected were all persons who - in their own opinion - react sensitively to electrosmog.

### **Explanations regarding the selection of the heart rate variability measurement as a diagnostic system for this investigation**

The vegetative nervous system dynamically controls the internal balance of the organism, depending on the momentary external and internal loads. The heart reacts to stimuli that are consciously perceived and to consciously imperceptible stimuli, which are generated for example by electromagnetic ambient radiation and act on the vegetative nervous system. The heart rate variability of a healthy person is essentially based on the optimum interplay between the sympathetic and the parasympathetic components of the vegetative nervous system.

The heart is an electromagnetic power source of 2.4 Watts, the oscillations of which can be measured in the tiniest cell of the organism. All rhythms of life are reflected in the heartbeat. If these rhythms are in harmony, in coherence, then we experience a sense of well-being. The measurable primary variable of this information chain is the heart rate variability (HRV), which is the most important parameter for the accurate assessment of well-being and vitality.

The heart rate variability is defined as the ability of an organism (human, mammal) to alter the frequency of the heart's rhythm. Even when in a resting state, spontaneous changes arise in the temporal interval between two heartbeats. A healthy organism constantly adjusts the heart rate to the momentary requirements via autonomous physiological regulatory pathways. Physical demands and psychological stresses are therefore known to generally cause an increase in the heart rate, which usually returns to

the normal rate when the strain or stress is alleviated. A greater ability to adjust to stresses and strains therefore exists if the heart rate variability is higher. In contrast, in the event of chronic stress the constantly high tension results in both of these characteristics being restricted to a greater or lesser degree, and therefore being reduced.

*Debilitating or harmful effects, such as those from high frequency mobile telephony radiation and low frequency electrosmog, are commonly recognised by the nervous system as vital threats. If the organism is subjected to constant loads by interference fields then it is not able to normalise these stress parameters and they lead to a reduction in the heart rate variability; i.e. the ability of the organism to adjust to changing parameters within the environment is reduced. As a result of this interrelation, the protective effect of a product or an action can be verified by measuring the heart rate variability.*

The spontaneous stimulation of the vegetative nervous system by electromagnetic radiation and energy fields generally lies well below the threshold value that is physically perceptible. However, the sensitive measuring equipment of modern biofeedback systems also logs the tiniest reactions of the vegetative nervous system control, in particular via the parameters of heart rate variability. In scientific research, the reproducibility of the results of modern measuring devices for heart rate variability has also been confirmed with short testing time frames.

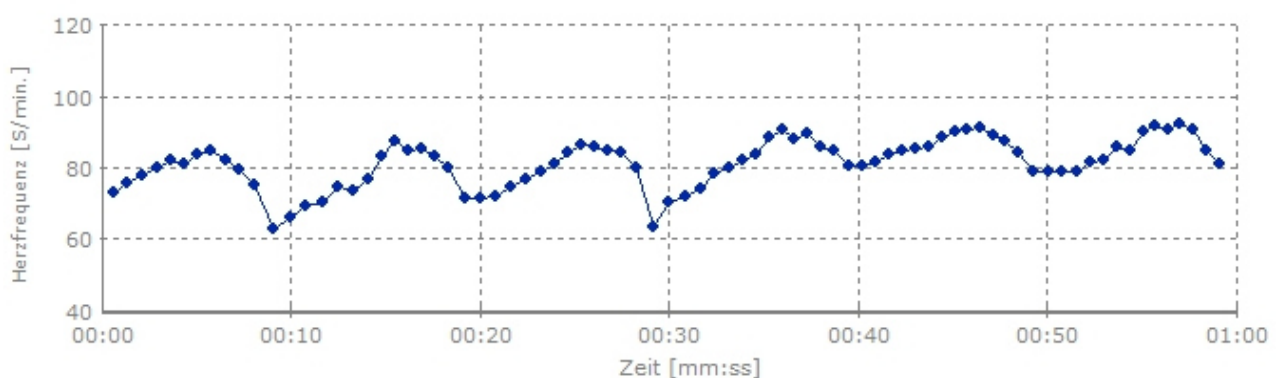
Measurement of the heart rate variability was therefore selected as a diagnostic system, in order to assess whether the energetic information field of the SPIRO CARD LEVEL 3 leads to an improvement in the heart rate variability of the test subjects, and is therefore able to contribute to an increase in the individual ability of the biological system to adjust.

*The use of the SPIRO CARD LEVEL 3 with health-endangering disturbances due to high frequency electromagnetic radiation and electrosmog should therefore lead to a verifiable improvement in the heart rate variability, whilst also promoting the heart and circulatory system processes and reducing the work of the vegetative nervous system required in order to maintain the internal balance.*

### **3. Biophysical investigation of the energetic effect of the SPIRO CARD LEVEL 3 in conjunction with the biofeedback system Stress Pilot Plus.**

In this study, the change in the physiological signals of a test subject group was logged as feedback from the vegetative nervous system to the bioenergetic information of the SPIRO CARD LEVEL 3 through the measurement of the heart rate variability and this data was evaluated according to mathematical-statistical processes.

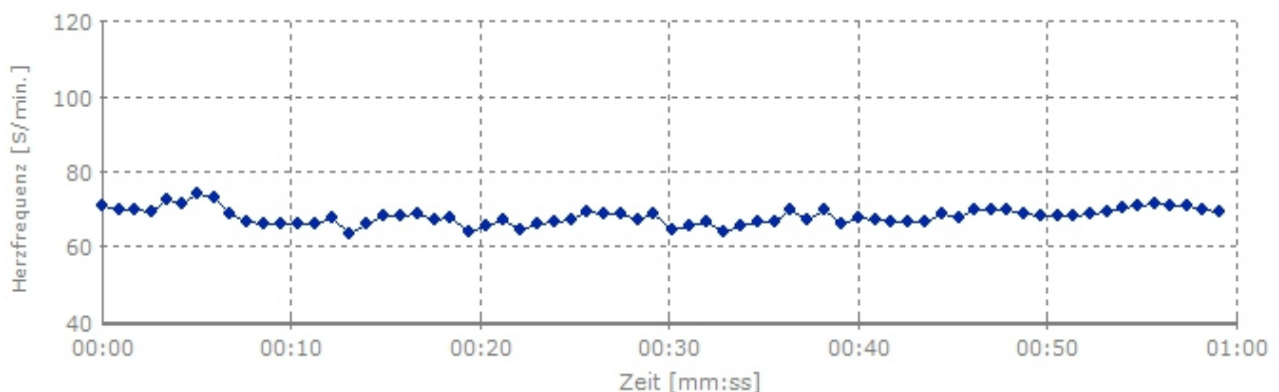
*Optimum regulation of the heart rate (example)*



During this measurement of the heart rate variability, the breathing and heartbeat balance with each other in the case of well-functioning neurovegetative regulation. The heart rate oscillates up and down in harmony with the breathing rhythm, in a sinusoidal form. The greater the fluctuation of the heart rate within the breathing cycle (significant respiratory sinus arrhythmia; RSA), the better the neurovegetative regulation in general terms.

The function of the autogenous nervous system lies in adjusting the basic regulation of the biological system to changing load parameters both internally and externally. Health, well-being and functional vitality are inextricably linked with the regulation processes and the rhythms of life, which are reflected in the heartbeat.

### *Restricted regulation of the heart rate (example)*



Neurovegetative regulation disturbances are expressed in this measurement through a minimal or lack of adjustment of the heart rate to the breathing rhythm. The heart rate only oscillates in harmony with the breathing cycle to a very slight degree, and in some instances not at all. With increasing age, the ability to regulate also diminishes. The results of the heart rate variability measurement are therefore related to the respective age group.

### **3.1. Selection of the test subjects and selected measurement log**

10 test subjects of both genders who are exposed to a customary modern level of electromagnetic radiation were selected for participation in this biophysical investigation. The ages of the test subjects range between 10 and 76 years. The test subjects selected were all persons who - in their own opinion - react sensitively to electrosmog. The heart rate variability measurements were taken in the apartments or at the workplaces of the test subjects. The measurements were taken in advance of using the SPIRO CARD LEVEL 3 and then once again after a few days spent using the SPIRO CARD LEVEL 3.

### **3.2. Selected measuring device**

The biofeedback system *Stress Pilot Plus* was used in order to biophysically test the energetic effects of the SPIRO CARD LEVEL 3. The values of the last respective minute of each period were drawn upon for the statistical evaluation. The test results were compared with standard values, which were obtained from a comparable normal control group according to age and gender.

The varying ability of the test subjects to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog is

determined by applying the percentage value of the poorest values derived from a comparison group. Accordingly, 0% is the lowest value and 100% is highest theoretical value indicating the ability of the test subject to regulate the heart rate and adjust the vegetative nervous system to the existing disturbances caused by electrosmog.

### 3.3. Explanation of the measurement log parameters

*RSA* = The respiratory sinus arrhythmia (RSA) describes the fluctuation of the heart rate in harmony with the breathing rhythm. Upon inhalation the heart rate rises. When the breath is exhaled the heart rate decreases.

*RMSSD* = (Root mean square of successive differences). The RMSSD equates to the square root of the squared differences of successive RR intervals. It is less susceptible to trends than the variation coefficient. The RMSSD enables a statement regarding the variation of successive RR intervals.

*Average heart rate* = The average heart rate is the average number of beats of the heart per minute.

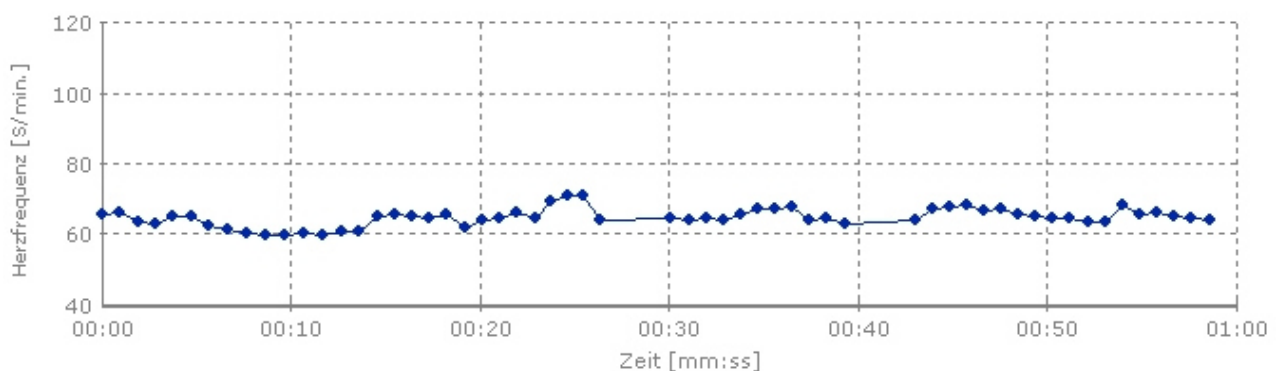
*Standard deviation* = The size of the standard deviation is dependent on the number of RR intervals tested within the test series. The RR interval is the duration of one heartbeat.

*Variation coefficient* = The variation coefficient is calculated by dividing the standard deviation by the average length of the RR interval. This standardisation enables the application of the variation coefficient as a statistical benchmark. The variation coefficient facilitates an assessment of the long-term variation in the time series.

### 3.4 Measurement results

*Test subject 11*

*Regulation of the heart rate without SPIRO CARD LEVEL 3*

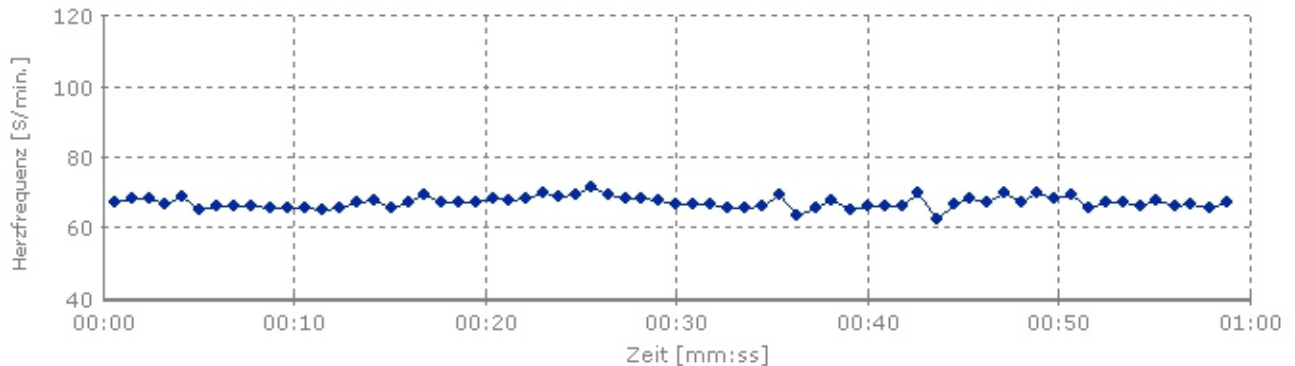


*Measurement results without SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	3,31	bpm	3,17%
RMSSD	26,22	ms	
Average heart rate	64,5	bpm	
Standard deviation	2,48	bpm	
Variation coefficient	3,91	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 3,17% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 3 days using SPIRO CARD LEVEL 3*

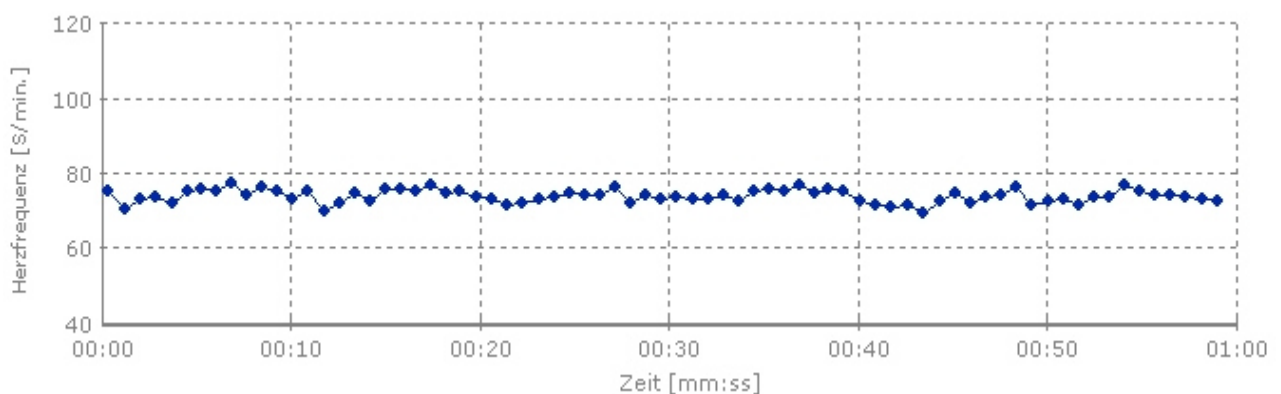


*Measurement results after 3 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	3,98	bpm	4,41%
RMSSD	27,21	ms	
Average heart rate	67,3	bpm	
Standard deviation	1,62	bpm	
Variation coefficient	2,45	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 4,41% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 6 days using SPIRO CARD LEVEL 3*

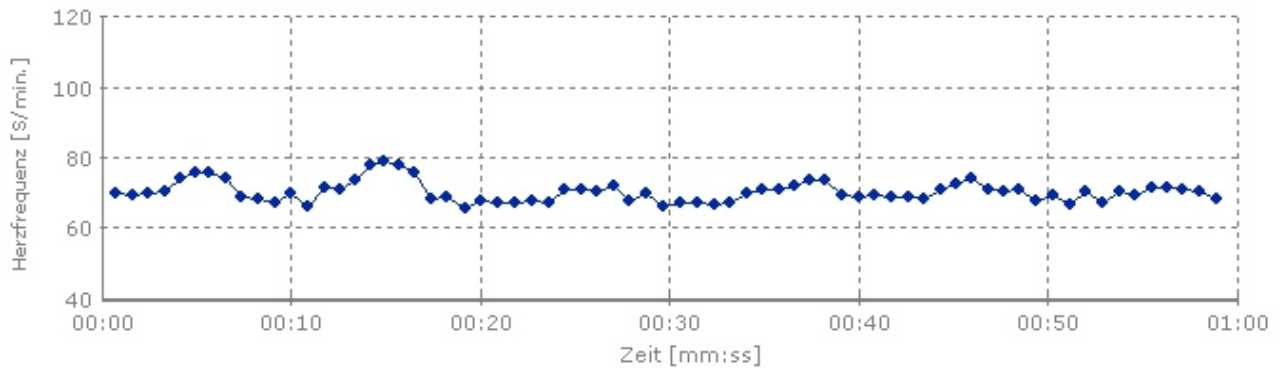


*Measurement results after 6 days using SPIRO CARD LEVEL 3*

	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	5,68	bpm	7,22%
RMSSD	22,02	ms	
Average heart rate	73,2	bpm	
Standard deviation	1,72	bpm	
Variation coefficient	2,45	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 7,22% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 15 days using SPIRO CARD LEVEL 3*



*Measurement results after 15 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	15,02	bpm	22,30%
RMSSD	70,01	ms	
Average heart rate	68,9	bpm	
Standard deviation	4,84	bpm	
Variation coefficient	7,01	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 22,30% of the theoretical maximum value of 100%.

*Summary of the test results:* The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained the following values of the theoretical maximum value of 100%:

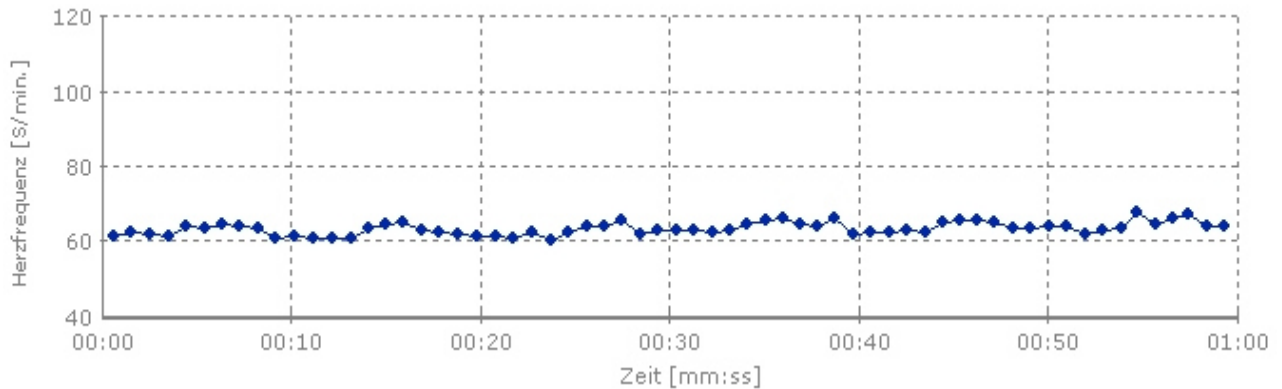
- without SPIRO CARD LEVEL 3: 3,17%
- after 3 days using SPIRO CARD LEVEL 3: 4,41%
- after 7 days using SPIRO CARD LEVEL 3: 7,22%
- after 15 days using SPIRO CARD LEVEL 3: 22,30%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.



Test subject 12

Regulation of the heart rate without SPIRO CARD LEVEL 3

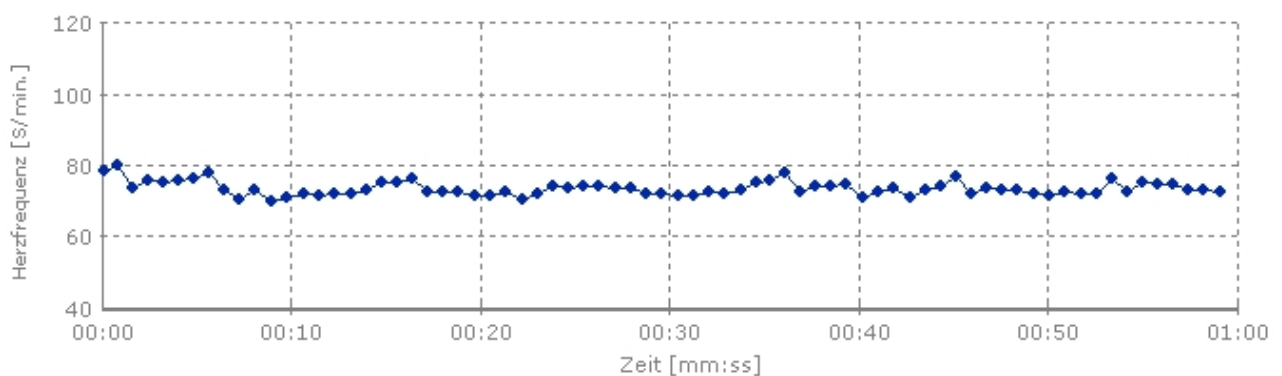


Measurement results without SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	4,81	bpm	6,12%
RMSSD	23,22	ms	
Average heart rate	63,7	bpm	
Standard deviation	1,69	bpm	
Variation coefficient	2,70	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 6,12% of the theoretical maximum value of 100%.

Regulation of the heart rate after 3 days using SPIRO CARD LEVEL 3

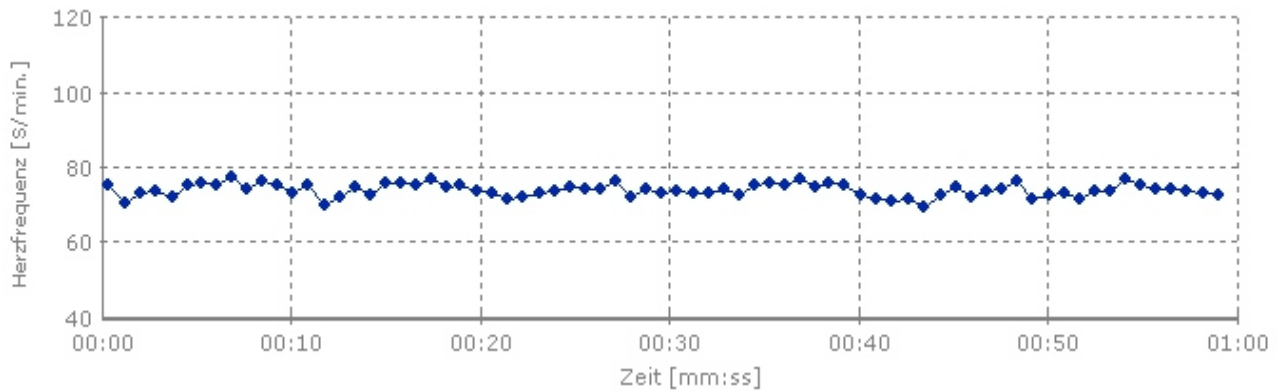


Measurement results after 3 days using SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	5,85	bpm	8,10%
RMSSD	21,49	ms	
Average heart rate	73,2	bpm	
Standard deviation	2,07	bpm	
Variation coefficient	2,72	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 8,10% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 7 days using SPIRO CARD LEVEL 3*

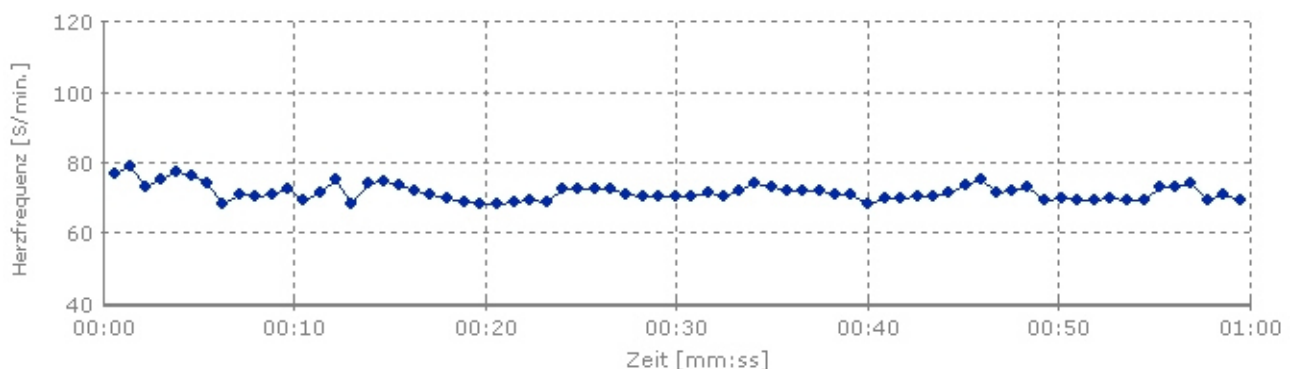


*Measurement results after 7 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	7,88	bpm	10,20%
RMSSD	22,05	ms	
Average heart rate	73,3	bpm	
Standard deviation	1,73	bpm	
Variation coefficient	2,48	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 10,20% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 11 days using SPIRO CARD LEVEL 3*

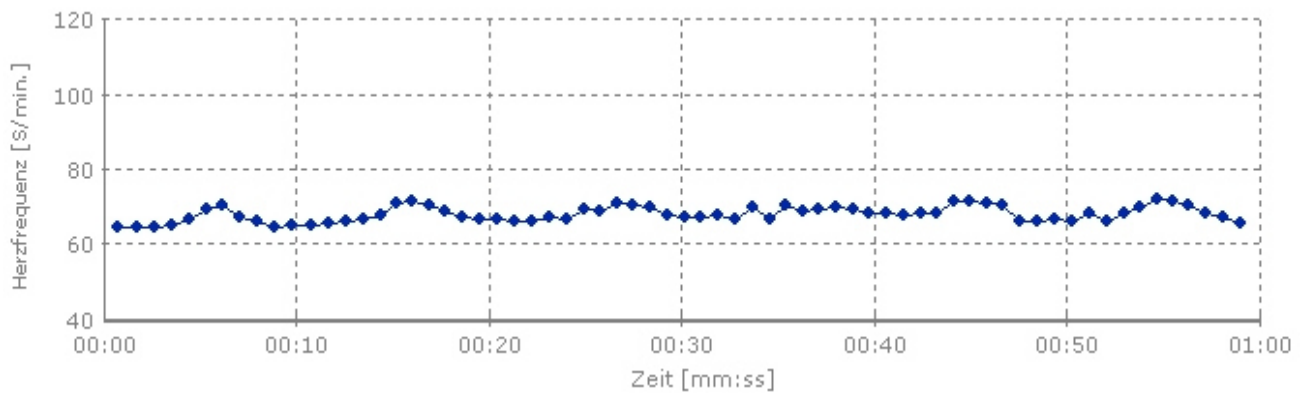


*Measurement results after 11 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	6,74	bpm	9,18%
RMSSD	24,99	ms	
Average heart rate	71,2	bpm	
Standard deviation	2,36	bpm	
Variation coefficient	3,28	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 9,18% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 13 days using SPIRO CARD LEVEL 3*

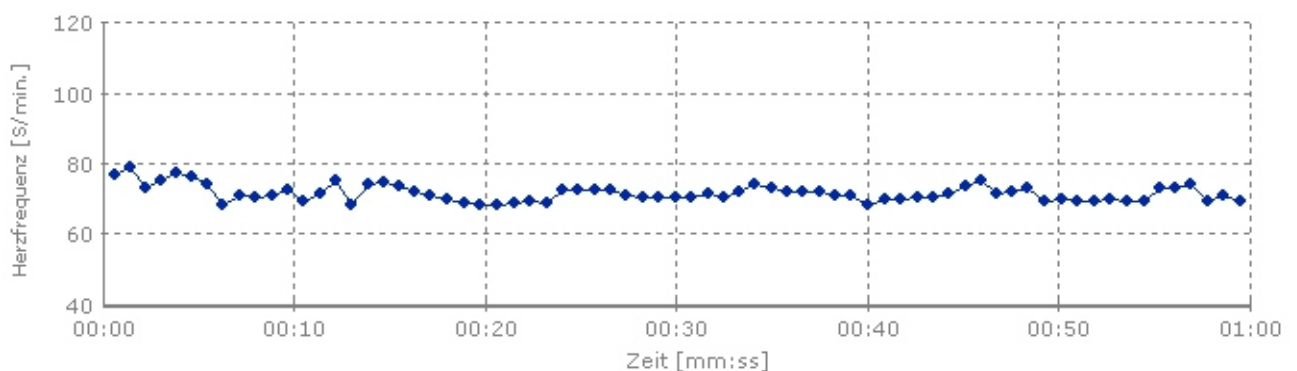


*Measurement results after 13 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	6,21	bpm	8,68%
RMSSD	20,32	ms	
Average heart rate	68,4	bpm	
Standard deviation	2,07	bpm	
Variation coefficient	2,92	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 8,68% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 17 days using SPIRO CARD LEVEL 3*

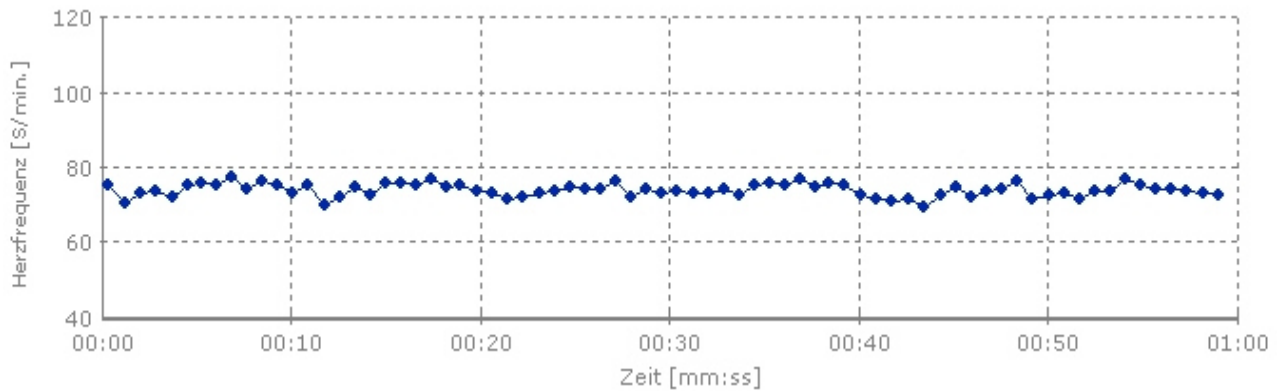


*Measurement results after 17 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	6,57	bpm	8,96%
RMSSD	24,98	ms	
Average heart rate	71,2	bpm	
Standard deviation	2,37	bpm	
Variation coefficient	3,22	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 8,96% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 19 days using SPIRO CARD LEVEL 3*



*Measurement results after 19 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	6,62	bpm	9,12%
RMSSD	22,06	ms	
Average heart rate	73,5	bpm	
Standard deviation	1,73	bpm	
Variation coefficient	2,44	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 9,12% of the theoretical maximum value of 100%.

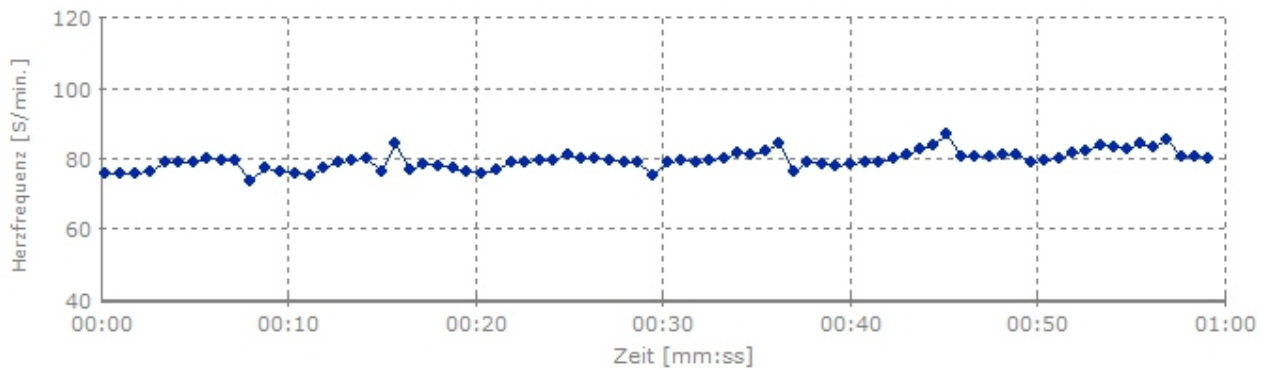
*Summary of the test results:* The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained the following values of the theoretical maximum value of 100%:

- without SPIRO CARD LEVEL 3: 6,12%
- after 3 days using SPIRO CARD LEVEL 3: 8,10%
- after 7 days using SPIRO CARD LEVEL 3: 10,20%
- after 11 days using SPIRO CARD LEVEL 3: 9,18%
- after 13 days using SPIRO CARD LEVEL 3: 8,68%
- after 17 days using SPIRO CARD LEVEL 3: 8,96%
- after 19 Tagen mit SPIRO CARD LEVEL3: 9,12%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

Test subject 13

Regulation of the heart rate without SPIRO CARD LEVEL 3

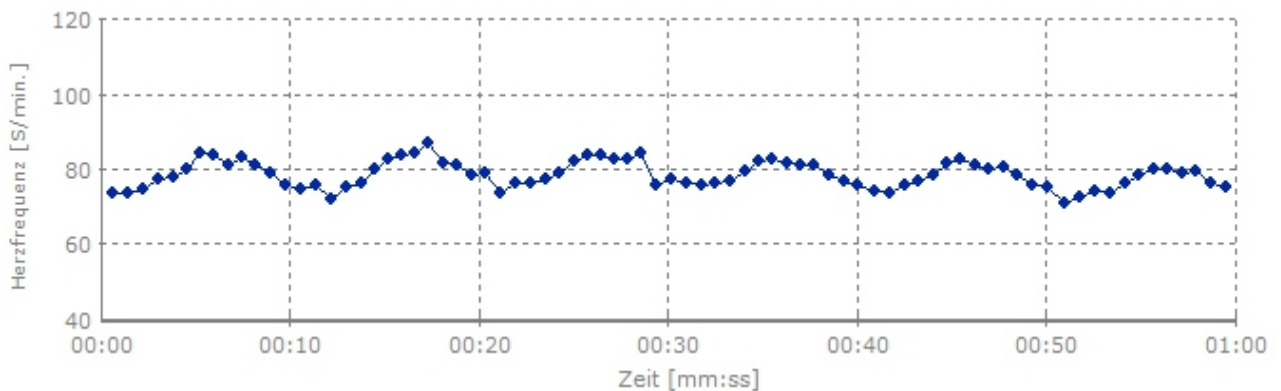


Measurement results without SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	7,72	bpm	29,38%
RMSSD	20,95	ms	
Average heart rate	79,3	bpm	
Standard deviation	2,51	bpm	
Variation coefficient	3,18	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 29,38% of the theoretical maximum value of 100%.

Regulation of the heart rate after 5 days using SPIRO CARD LEVEL 3

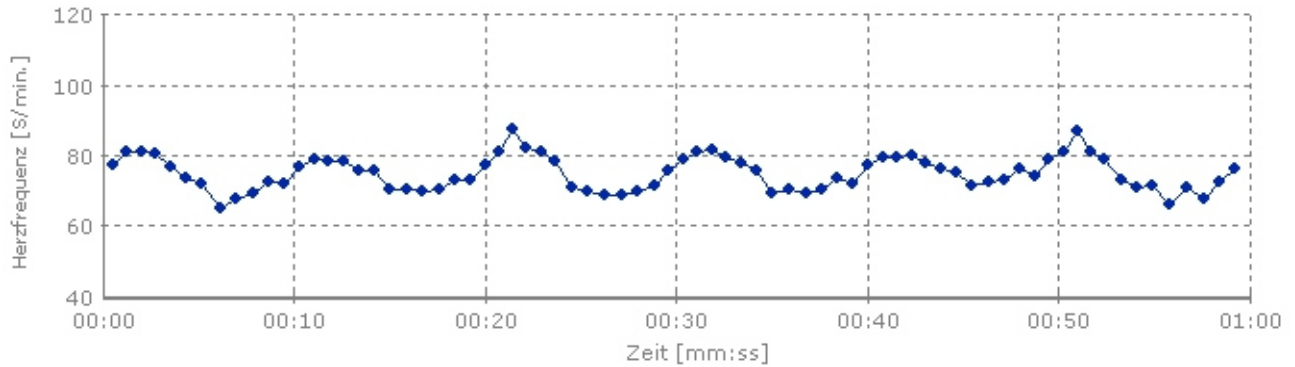


Measurement results after 5 days using SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	10,12	bpm	34,64%
RMSSD	21,91	ms	
Average heart rate	78,7	bpm	
Standard deviation	3,55	bpm	
Variation coefficient	4,50	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 34,64% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 9 days using SPIRO CARD LEVEL 3*

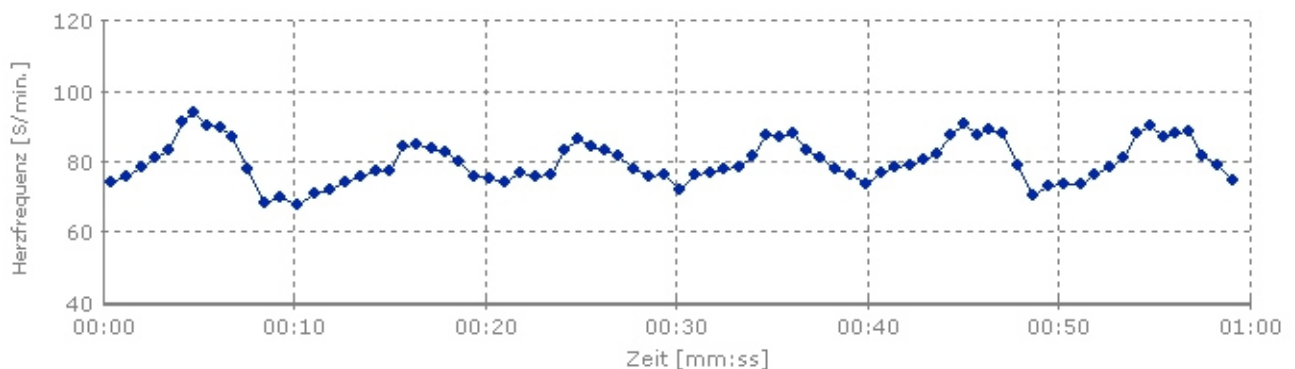


*Measurement results after 9 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	14,43	bpm	46,15%
RMSSD	34,87	ms	
Average heart rate	75,2	bpm	
Standard deviation	4,85	bpm	
Variation coefficient	6,42	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 46,15% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 13 days using SPIRO CARD LEVEL 3*

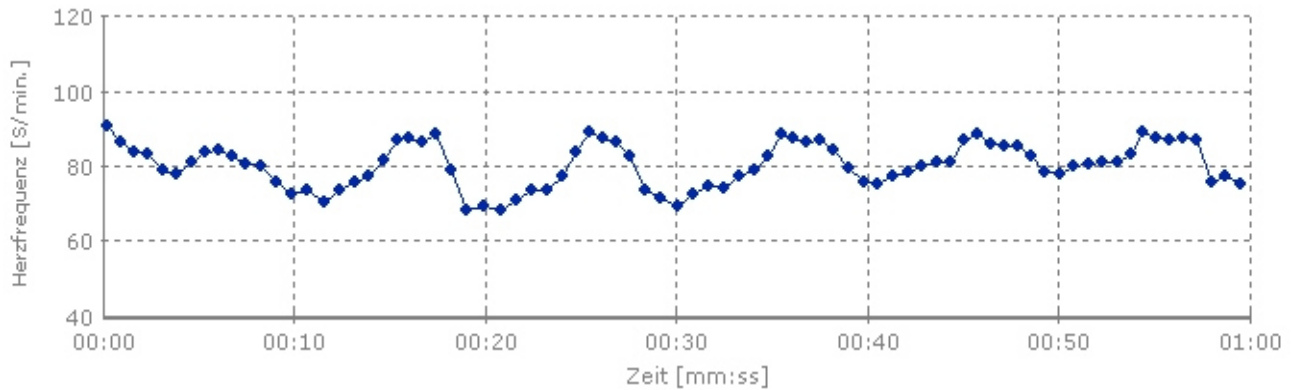


*Measurement results after 13 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	17,36	bpm	52,80%
RMSSD	33,55	ms	
Average heart rate	79,7	bpm	
Standard deviation	6,17	bpm	
Variation coefficient	7,66	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 52,80% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 16 days using SPIRO CARD LEVEL 3*



*Measurement results after 16 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	19,56	bpm	59,21%
RMSSD	33,21	ms	
Average heart rate	80,3	bpm	
Standard deviation	5,86	bpm	
Variation coefficient	7,25	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 59,21% of the theoretical maximum value of 100%.

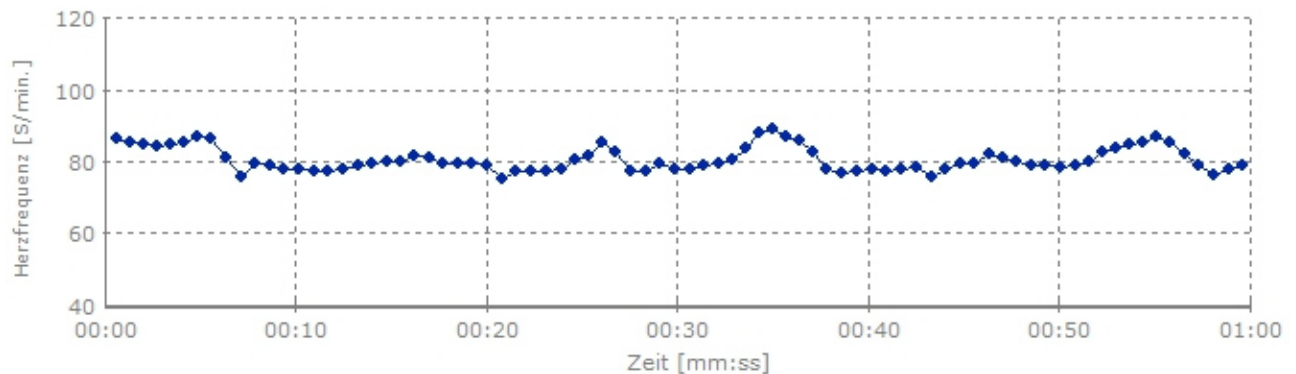
*Summary of the test results:* The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained the following values of the theoretical maximum value of 100%:

- without SPIRO CARD LEVEL 3: 29,38%
- after 5 days using SPIRO CARD LEVEL 3: 34,64%
- after 9 days using SPIRO CARD LEVEL 3: 46,15%
- after 13 days using SPIRO CARD LEVEL 3: 52,80%
- after 16 days using SPIRO CARD LEVEL 3: 59,21%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

Test subject 14

Regulation of the heart rate without SPIRO CARD LEVEL 3

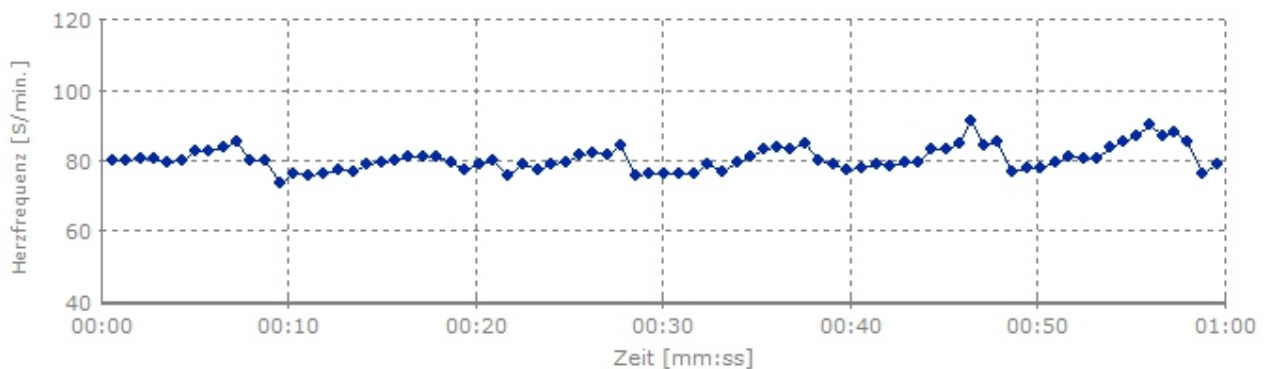


Measurement results without SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	9,41	bpm	38,52%
RMSSD	18,52	ms	
Average heart rate	80,4	bpm	
Standard deviation	3,37	bpm	
Variation coefficient	4,19	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 38,52% of the theoretical maximum value of 100%.

Regulation of the heart rate after 4 days using SPIRO CARD LEVEL 3



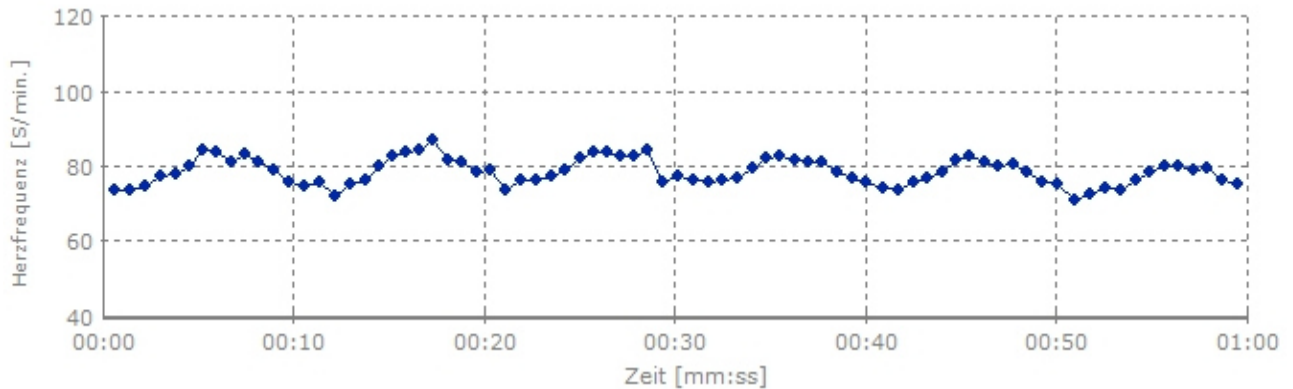
Measurement results after 4 days using SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	9,52	bpm	39,01%
RMSSD	25,00	ms	
Average heart rate	80,2	bpm	
Standard deviation	3,44	bpm	
Variation coefficient	4,23	%	



The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 39,01% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 7 days using SPIRO CARD LEVEL 3*

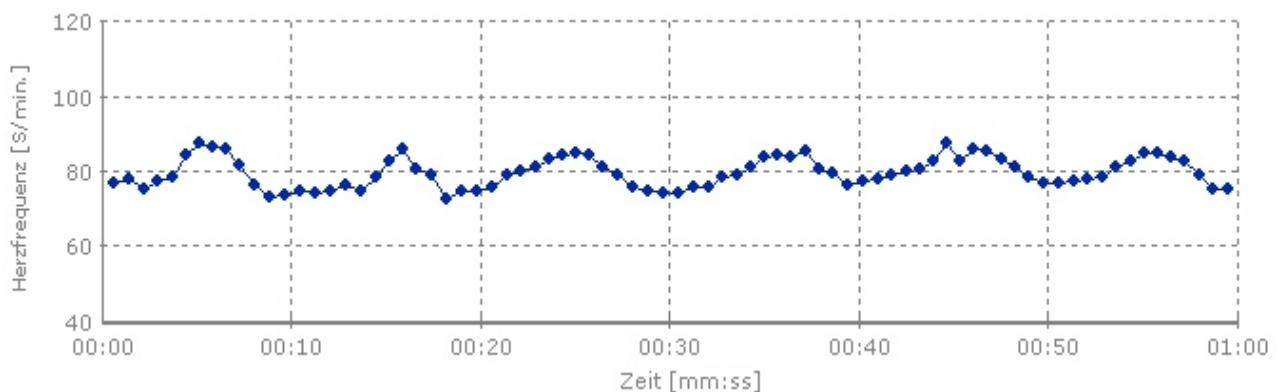


*Measurement results after 7 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	11,47	bpm	41,64%
RMSSD	21,89	ms	
Average heart rate	78,4	bpm	
Standard deviation	3,44	bpm	
Variation coefficient	4,49	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 41,64% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 9 days using SPIRO CARD LEVEL 3*

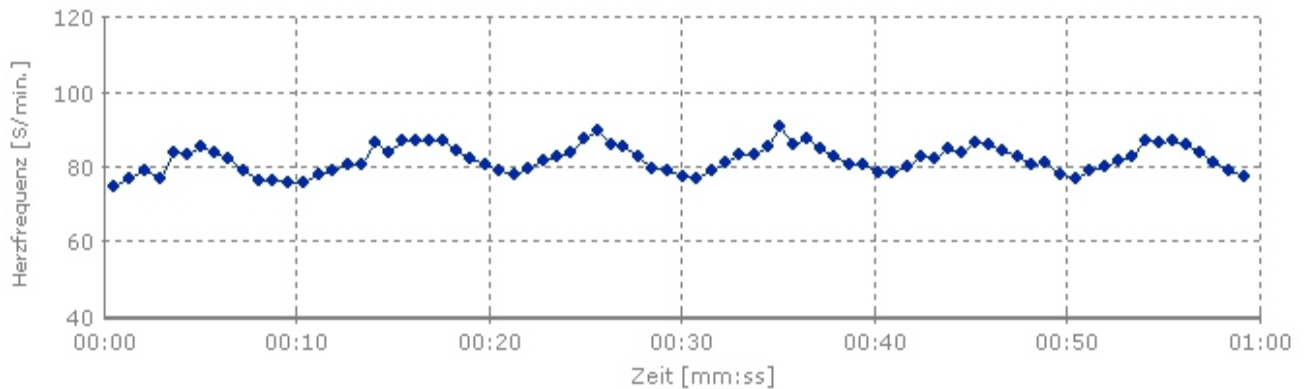


*Measurement results after 9 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	12,08	bpm	42,45%
RMSSD	22,83	ms	
Average heart rate	79,4	bpm	
Standard deviation	3,85	bpm	
Variation coefficient	5,04	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 42,45% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 11 days using SPIRO CARD LEVEL 3*

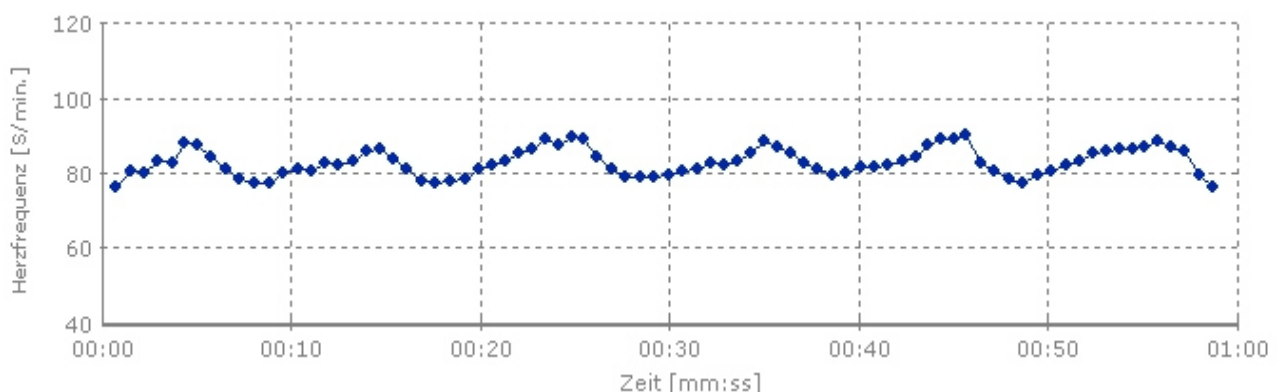


*Measurement results after 11 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	11,88	bpm	42,02%
RMSSD	20,13	ms	
Average heart rate	82,5	bpm	
Standard deviation	3,66	bpm	
Variation coefficient	4,45	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 42,02% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 12 days using SPIRO CARD LEVEL 3*

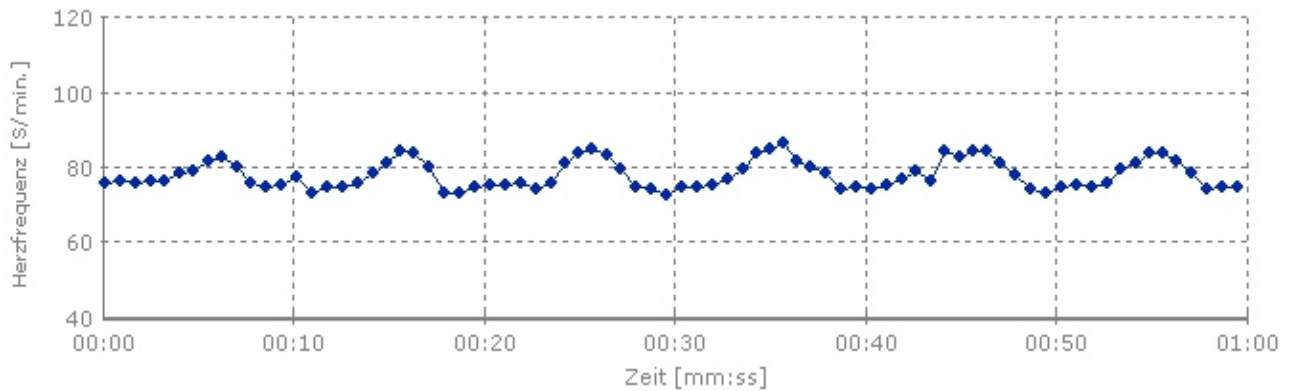


*Measurement results after 12 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	12,03	bpm	42,30%
RMSSD	21,49	ms	
Average heart rate	84,4	bpm	
Standard deviation	4,65	bpm	
Variation coefficient	5,54	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 42,30% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 14 days using SPIRO CARD LEVEL 3*

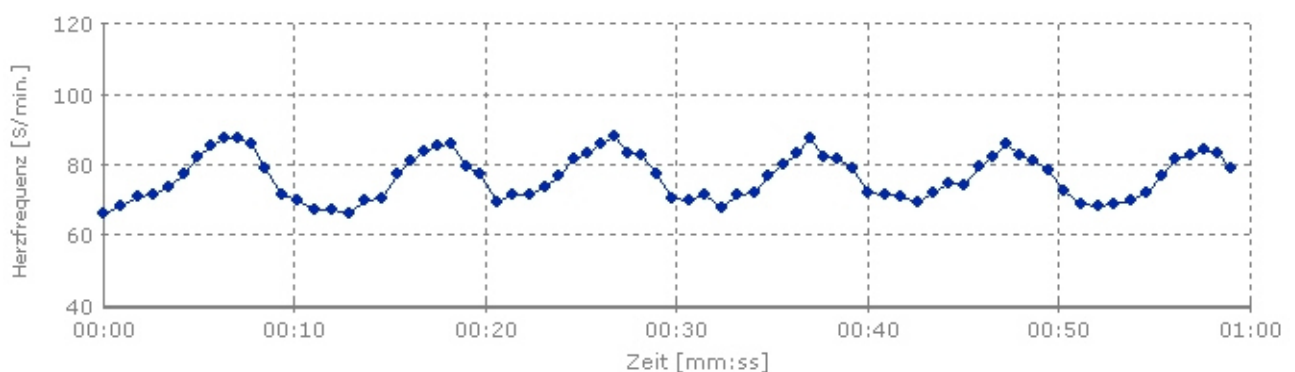


*Measurement results after 14 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	12,31	bpm	43,11%
RMSSD	24,06	Ms	
Average heart rate	78,4	bpm	
Standard deviation	3,64	bpm	
Variation coefficient	4,72	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 43,11% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 19 days using SPIRO CARD LEVEL 3*



*Measurement results after 19 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	19,73	bpm	59,39%
RMSSD	36,25	ms	
Average heart rate	76,5	bpm	
Standard deviation	6,34	bpm	
Variation coefficient	8,36	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 59,39% of the theoretical maximum value of 100%.

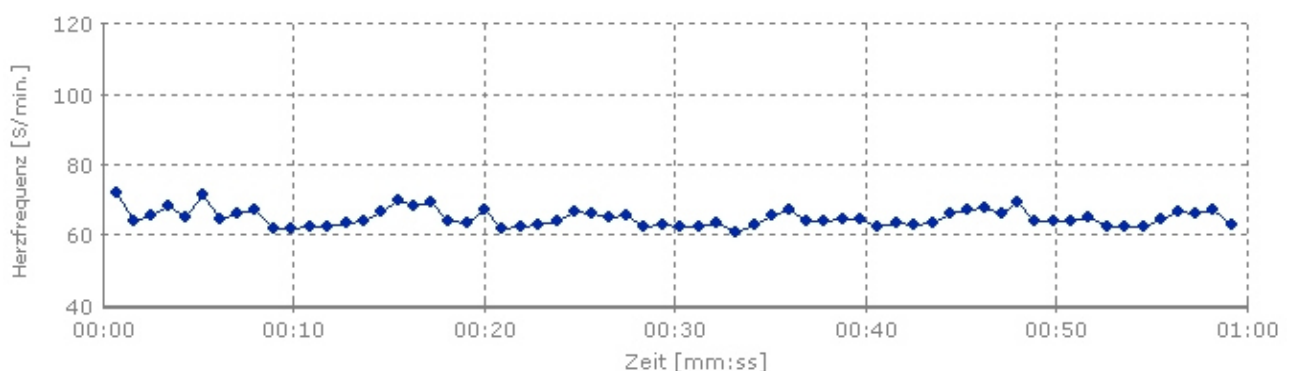
*Summary of the test results:* The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained the following values of the theoretical maximum value of 100%:

- without SPIRO CARD LEVEL 3: 38,52%
- after 4 days using SPIRO CARD LEVEL 3: 39,01%
- after 7 days using SPIRO CARD LEVEL 3: 41,64%
- after 9 days using SPIRO CARD LEVEL 3: 42,45%
- after 11 days using SPIRO CARD LEVEL 3: 42,02%
- after 12 days using SPIRO CARD LEVEL 3: 42,30%
- after 14 days using SPIRO CARD LEVEL 3: 43,11%
- after 19 days using SPIRO CARD LEVEL 3: 59,39%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

### Test subject 15

#### Regulation of the heart rate without SPIRO CARD LEVEL 3

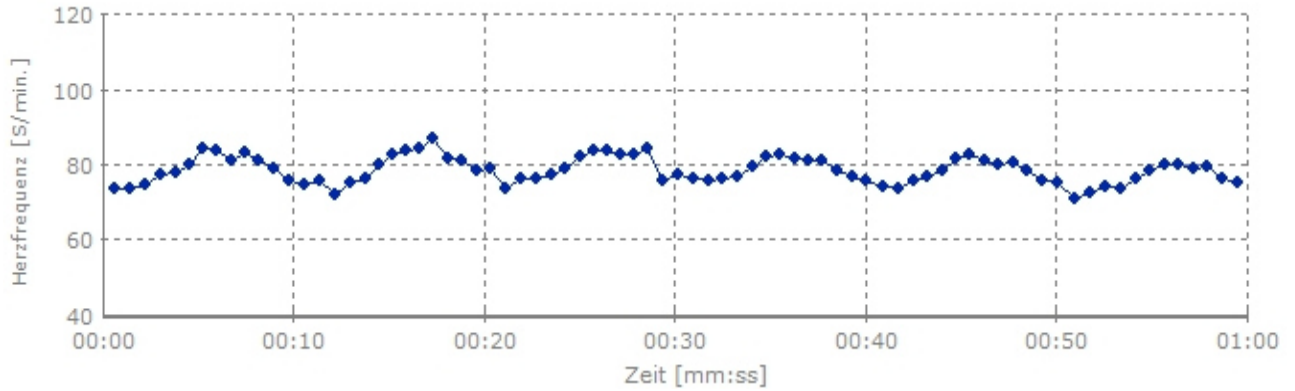


#### Measurement results without SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	6,72	bpm	29,38%
RMSSD	35,13	ms	
Average heart rate	64,6	bpm	
Standard deviation	2,42	bpm	
Variation coefficient	3,75	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 29,38% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 6 days using SPIRO CARD LEVEL 3*

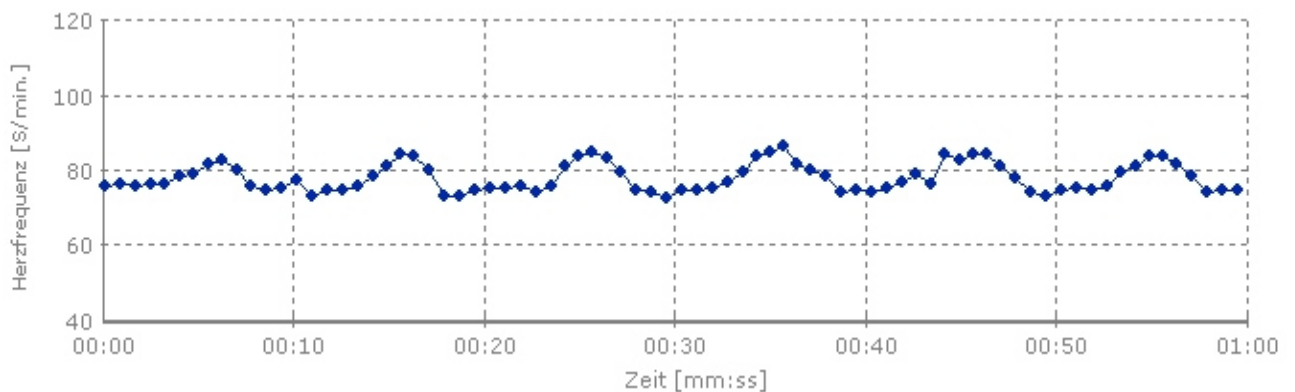


*Measurement results after 6 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	10,22	bpm	34,64%
RMSSD	21,81	ms	
Average heart rate	78,5	bpm	
Standard deviation	3,44	bpm	
Variation coefficient	4,43	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 34,64% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 10 days using SPIRO CARD LEVEL 3*

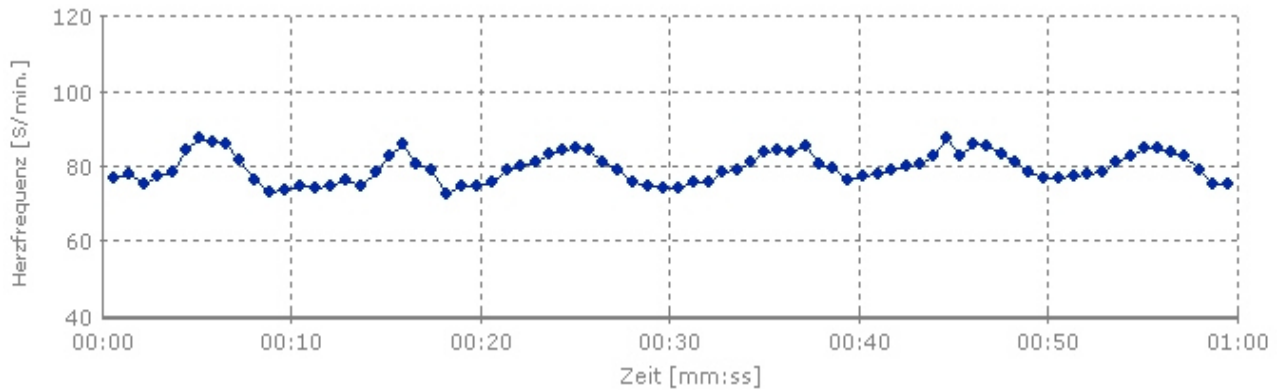


*Measurement results after 10 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	12,51	bpm	47,59%
RMSSD	24,07	ms	
Average heart rate	78,4	bpm	
Standard deviation	3,66	bpm	
Variation coefficient	4,74	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 47,59% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 12 days using SPIRO CARD LEVEL 3*



*Measurement results after 12 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	11,08	bpm	43,22%
RMSSD	22,84	ms	
Average heart rate	79,1	bpm	
Standard deviation	3,88	bpm	
Variation coefficient	5,07	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 43,22% of the theoretical maximum value of 100%.

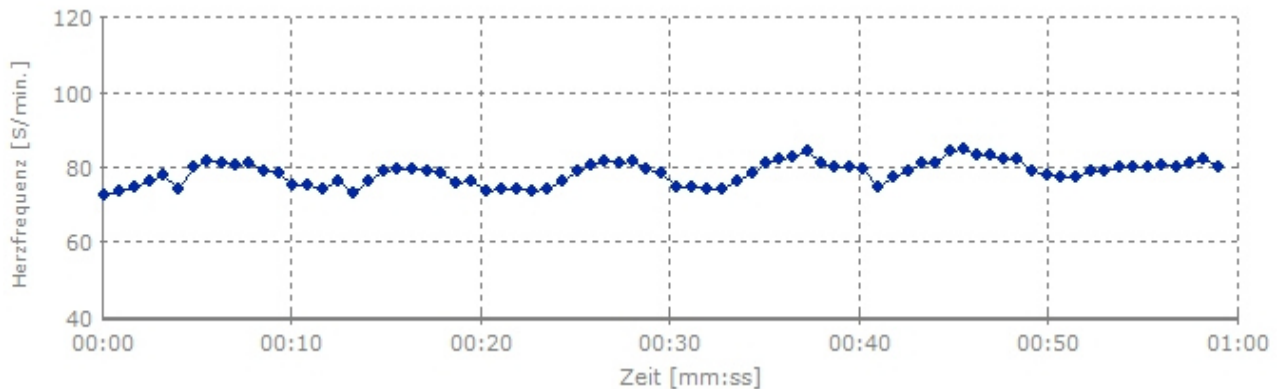
*Summary of the test results:* The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained the following values of the theoretical maximum value of 100%:

- without SPIRO CARD LEVEL 3: 29,38%
- after 6 days using SPIRO CARD LEVEL 3: 34,64%
- after 10 days using SPIRO CARD LEVEL 3: 47,59%
- after 12 days using SPIRO CARD LEVEL 3: 43,22%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

Test subject 16

Regulation of the heart rate without SPIRO CARD LEVEL 3

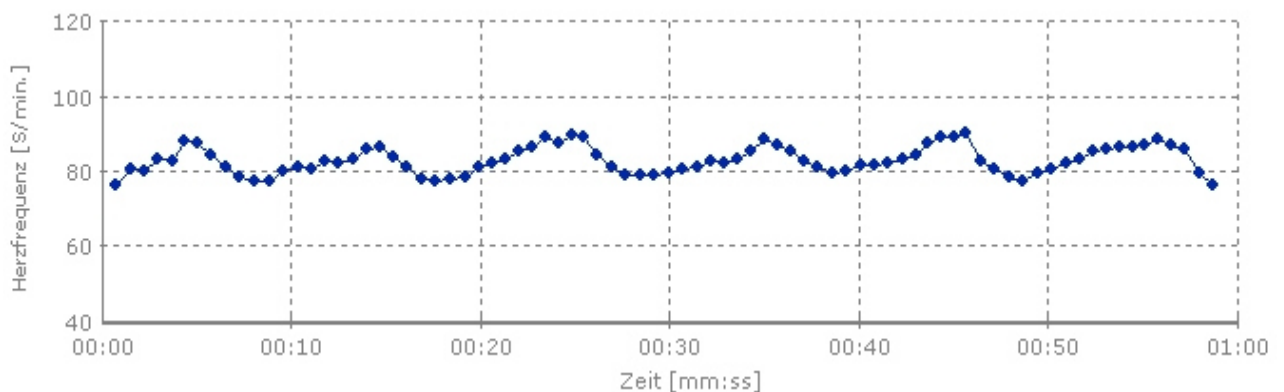


Measurement results without SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	9,71	bpm	32,41%
RMSSD	18,73	ms	
Average heart rate	78,2	bpm	
Standard deviation	3,10	bpm	
Variation coefficient	3,96	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 32,41% of the theoretical maximum value of 100%.

Regulation of the heart rate after 6 days using SPIRO CARD LEVEL 3

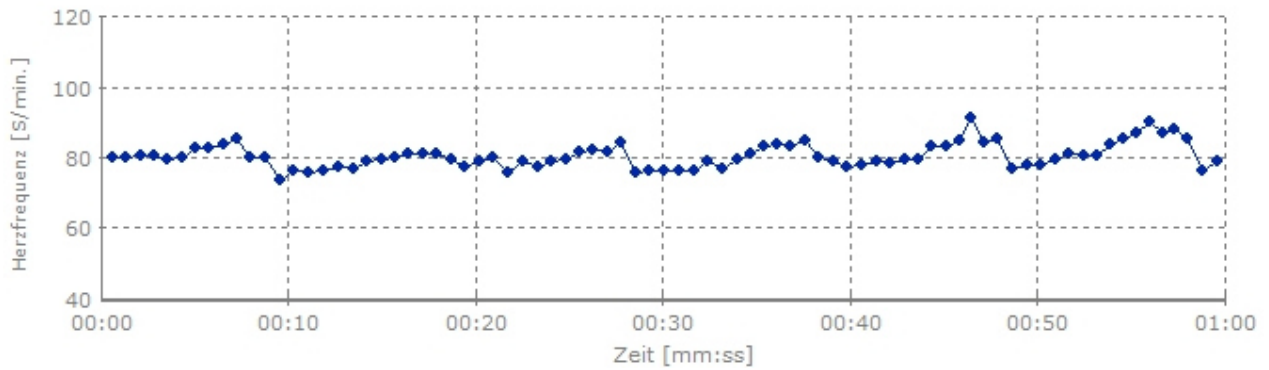


Measurement results after 6 days using SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	11,22	bpm	39,86%
RMSSD	18,84	Ms	
Average heart rate	82,6	bpm	
Standard deviation	3,64	bpm	
Variation coefficient	4,33	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 39,86% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 10 days using SPIRO CARD LEVEL 3*

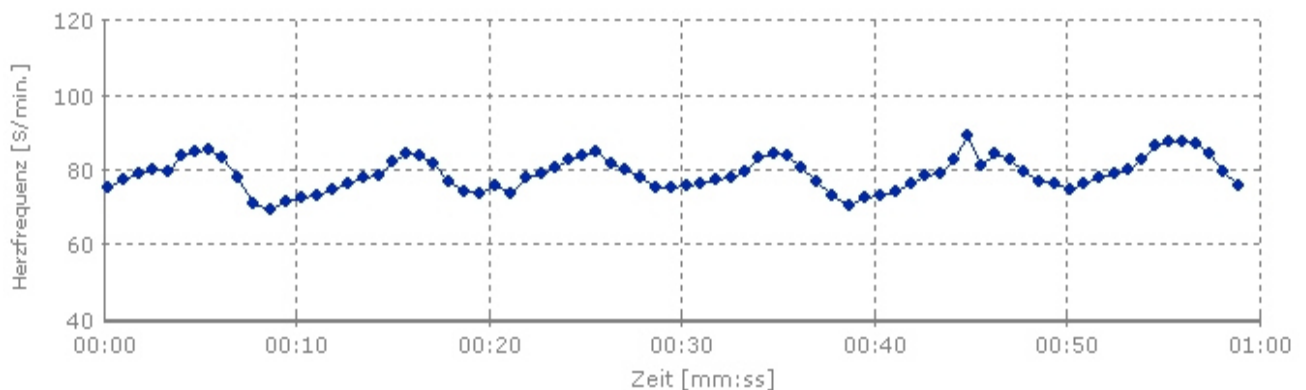


*Measurement results after 10 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	10,13	bpm	34,11%
RMSSD	38,20	ms	
Average heart rate	82,4	bpm	
Standard deviation	4,34	bpm	
Variation coefficient	4,67	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 34,11% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 15 days using SPIRO CARD LEVEL 3*





### Measurement results after 15 days using SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	13,66	bpm	43,22%
RMSSD	25,17	ms	
Average heart rate	78,4	bpm	
Standard deviation	4,53	bpm	
Variation coefficient	5,71	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 39,49% of the theoretical maximum value of 100%.

*Summary of the test results:* The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained the following values of the theoretical maximum value of 100%:

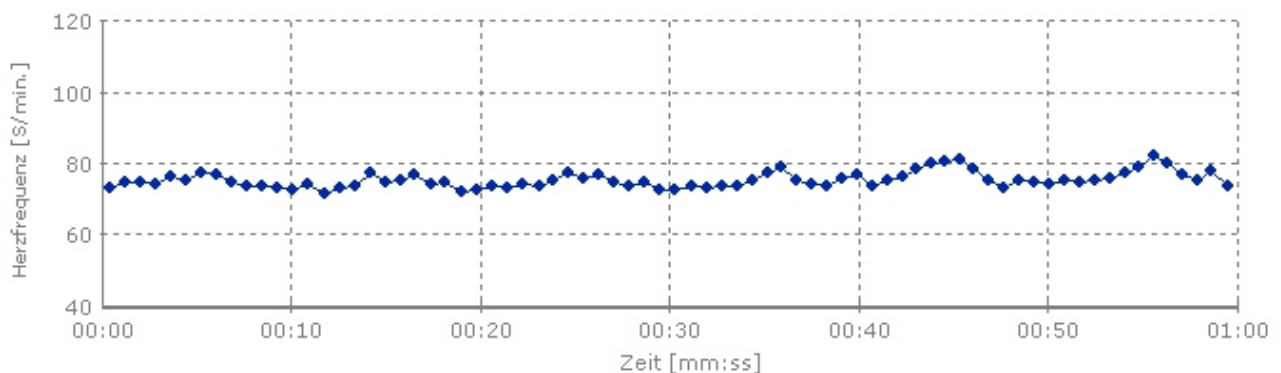
without SPIRO CARD LEVEL 3: 32,41%  
after 6 days using SPIRO CARD LEVEL 3: 39,86%  
after 10 days using SPIRO CARD LEVEL 3: 34,11%  
after 12 days using SPIRO CARD LEVEL 3: 43,22%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

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### Test subject 17

#### Regulation of the heart rate without SPIRO CARD LEVEL 3

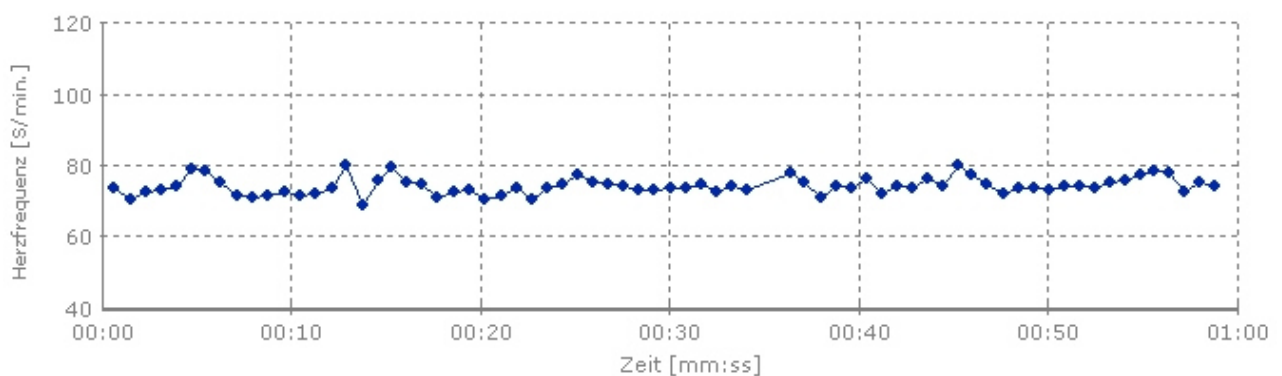


### Measurement results without SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	6,71	bpm	22,12%
RMSSD	18,70	ms	
Average heart rate	75,5	bpm	
Standard deviation	2,28	bpm	
Variation coefficient	2,93	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 22,12% of the theoretical maximum value of 100%.

### Regulation of the heart rate after 4 days using SPIRO CARD LEVEL 3

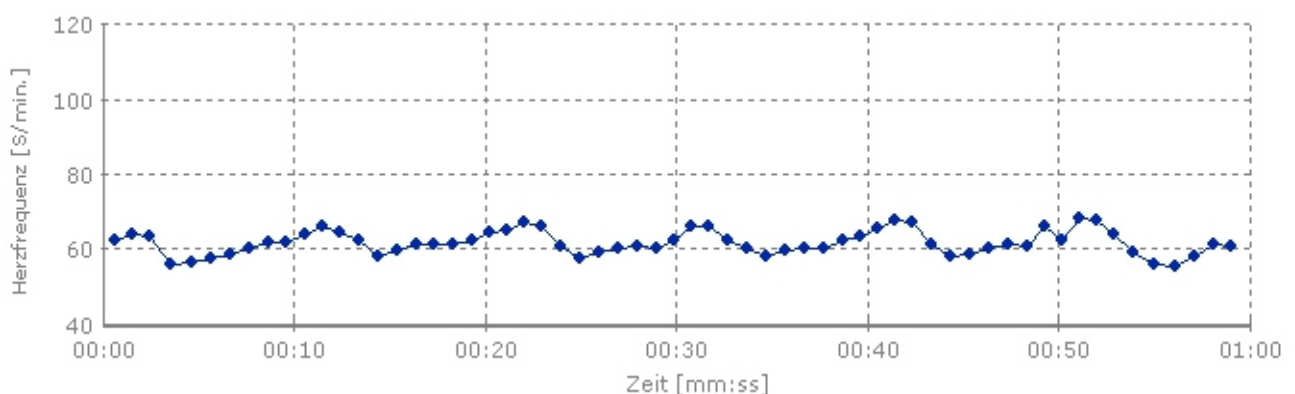


### Measurement results after 4 days using SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	8,44	bpm	24,58%
RMSSD	31,64	ms	
Average heart rate	74,5	bpm	
Standard deviation	2,41	bpm	
Variation coefficient	3,26	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 24,58% of the theoretical maximum value of 100%.

### Regulation of the heart rate after 5 days using SPIRO CARD LEVEL 3

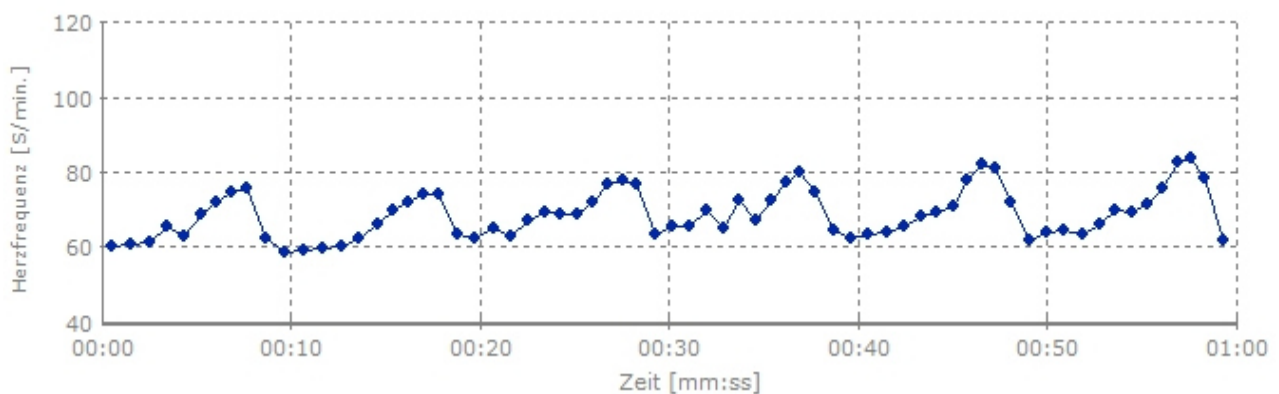


### Measurement results after 5 days using SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	8,97	bpm	25,67%
RMSSD	43,51	ms	
Average heart rate	59,9	bpm	
Standard deviation	3,72	bpm	
Variation coefficient	6,36	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 25,67% of the theoretical maximum value of 100%.

### Regulation of the heart rate after 7 days using SPIRO CARD LEVEL 3

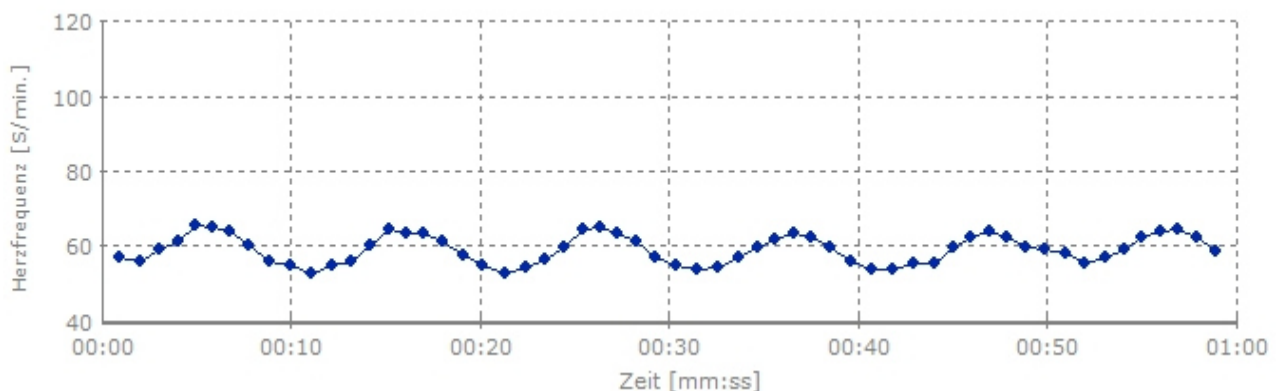


### Measurement results after 7 days using SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	8,39	bpm	25,18%
RMSSD	42,84	ms	
Average heart rate	62,4	bpm	
Standard deviation	3,28	bpm	
Variation coefficient	5,33	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 25,18% of the theoretical maximum value of 100%.

### Regulation of the heart rate after 10 days using SPIRO CARD LEVEL 3

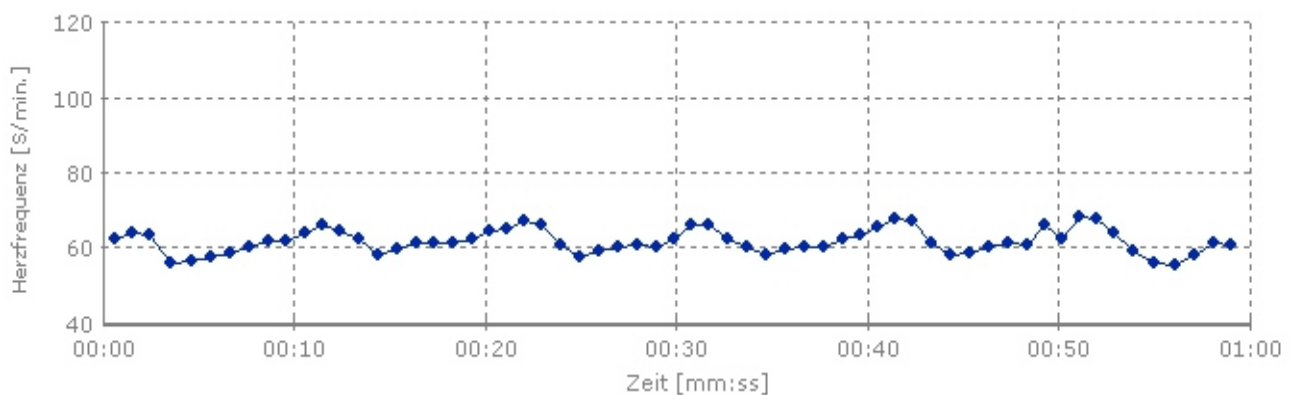


*Measurement results after 10 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	9,48	bpm	26,24%
RMSSD	41,34	ms	
Average heart rate	61,3	bpm	
Standard deviation	3,21	bpm	
Variation coefficient	5,19	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 26,24% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 12 days using SPIRO CARD LEVEL 3*

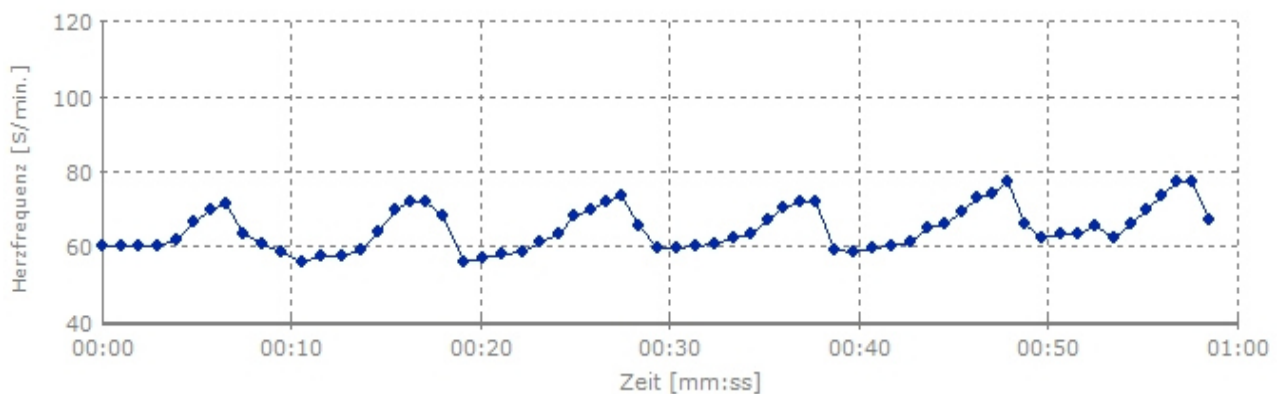


*Measurement results after 12 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	9,71	bpm	27,03%
RMSSD	41,43	ms	
Average heart rate	61,7	bpm	
Standard deviation	3,19	bpm	
Variation coefficient	5,14	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 27,03% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 16 days using SPIRO CARD LEVEL 3*



### Measurement results after 16 days using SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	14,10	bpm	35,40%
RMSSD	65,71	ms	
Average heart rate	65,4	bpm	
Standard deviation	5,72	bpm	
Variation coefficient	8,81	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 35,40% of the theoretical maximum value of 100%.

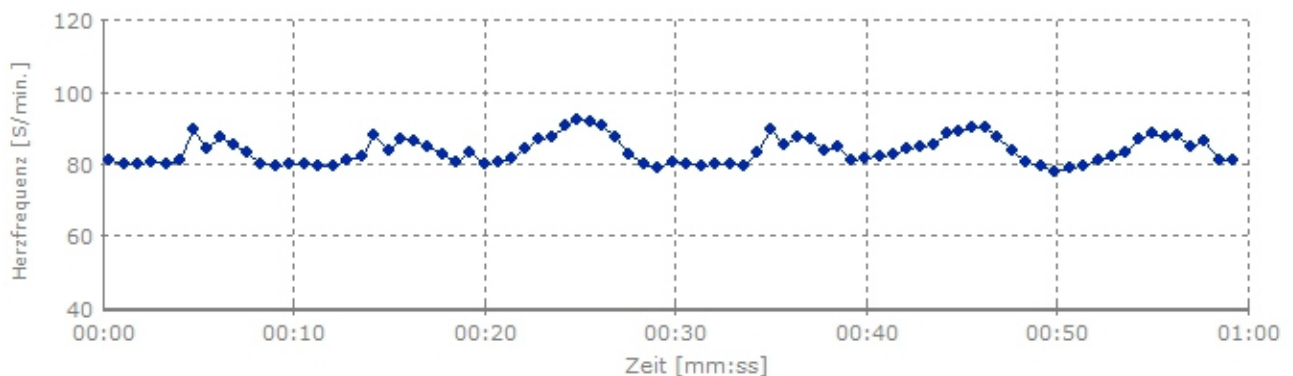
*Summary of the test results:* The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained the following values of the theoretical maximum value of 100%:

without SPIRO CARD LEVEL 3: 22,12%  
 after 4 days using SPIRO CARD LEVEL 3: 24,58%  
 after 5 days using SPIRO CARD LEVEL 3: 25,67%  
 after 7 days using SPIRO CARD LEVEL 3: 25,18%  
 after 10 days using SPIRO CARD LEVEL 3: 26,24%  
 after 12 days using SPIRO CARD LEVEL 3: 27,03%  
 after 16 days using SPIRO CARD LEVEL 3: 35,40%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

### Test subject 18

#### Regulation of the heart rate without SPIRO CARD LEVEL 3

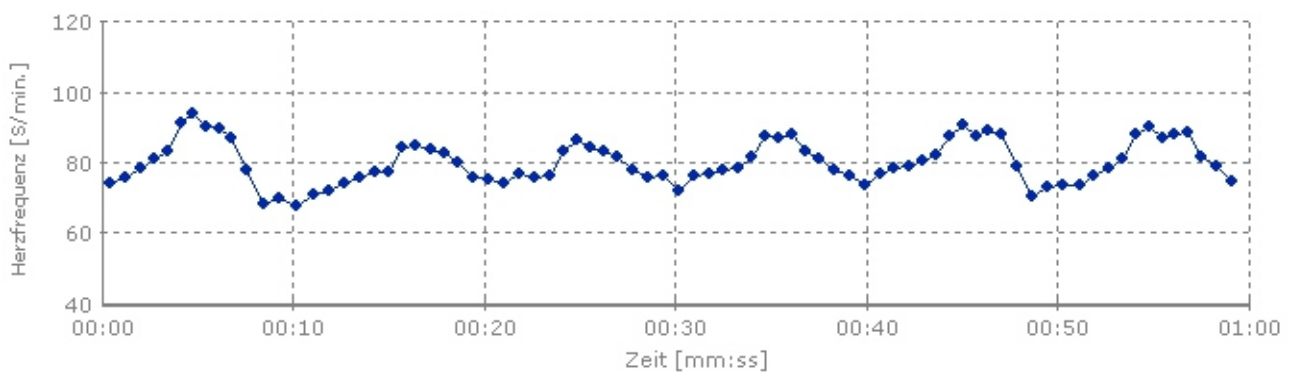


*Measurement results without SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	10,46	bpm	28,47%
RMSSD	21,04	ms	
Average heart rate	83,555	bpm	
Standard deviation	3,73	bpm	
Variation coefficient	4,47	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 28,47% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 6 days using SPIRO CARD LEVEL 3*

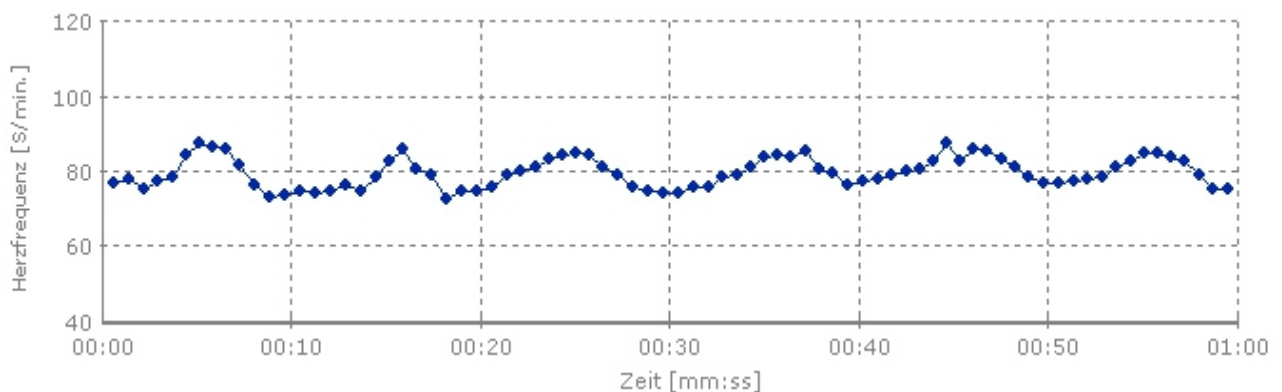


*Measurement results after 6 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	17,34	bpm	38,62%
RMSSD	33,67	ms	
Average heart rate	80,7	bpm	
Standard deviation	6,15	bpm	
Variation coefficient	7,61	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 38,62% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 10 days using SPIRO CARD LEVEL 3*

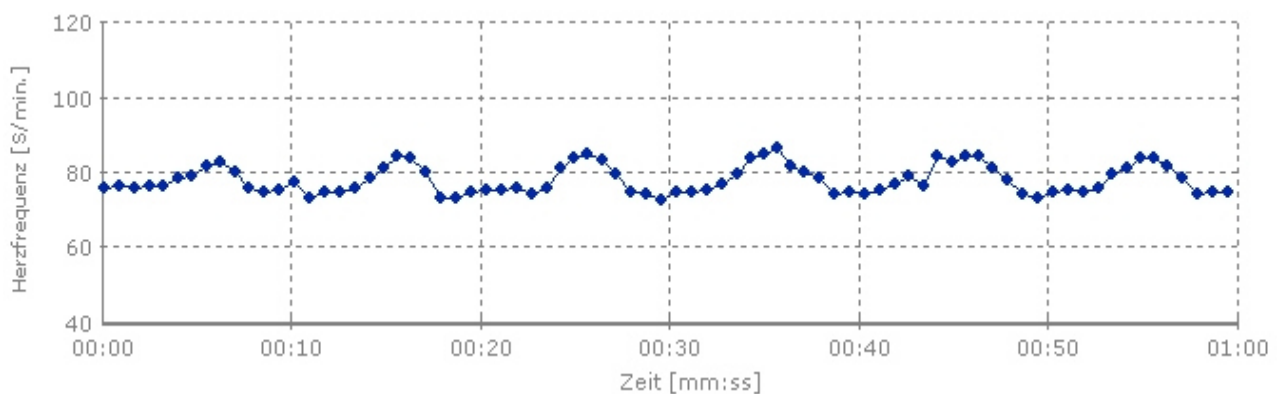


*Measurement results after 10 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	10,94	bpm	29,33%
RMSSD	22,88	ms	
Average heart rate	79,2	bpm	
Standard deviation	3,93	bpm	
Variation coefficient	5,07	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 29,33% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 17 days using SPIRO CARD LEVEL 3*

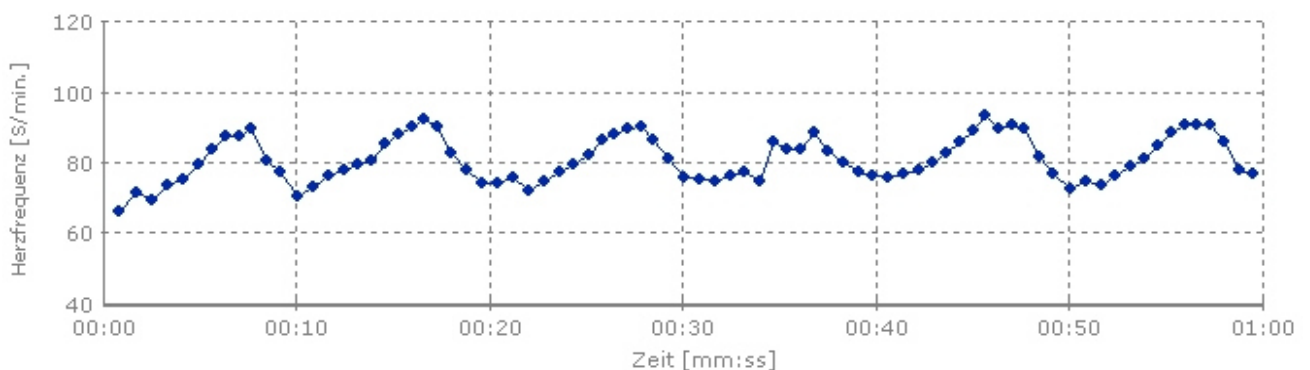


*Measurement results after 17 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	11,54	bpm	31,49%
RMSSD	24,17	ms	
Average heart rate	77.1	bpm	
Standard deviation	3,76	bpm	
Variation coefficient	4,75	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 31,49% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 22 days using SPIRO CARD LEVEL 3*



*Measurement results after 22 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	18,51	bpm	39,65%
RMSSD	34,27	ms	
Average heart rate	81,5	bpm	
Standard deviation	6,44	bpm	
Variation coefficient	8,08	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 39,65% of the theoretical maximum value of 100%.

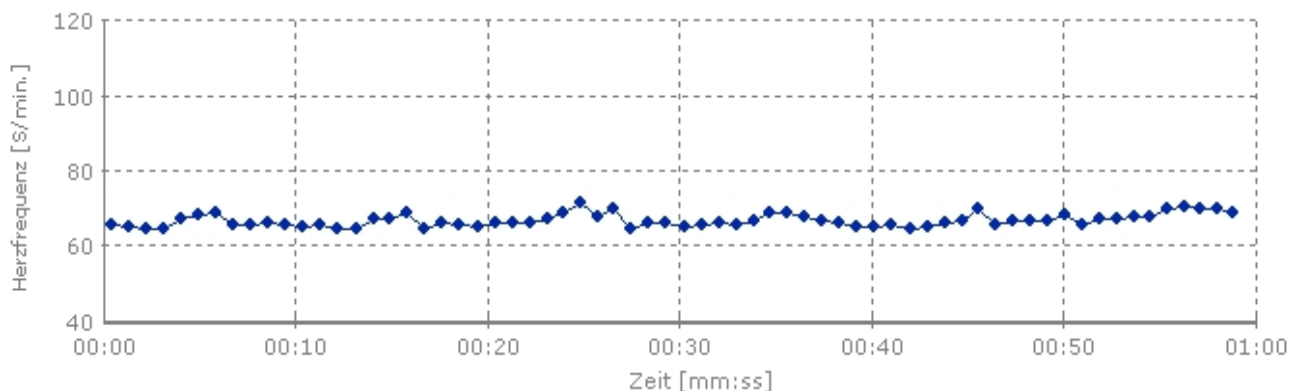
*Summary of the test results:* The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained the following values of the theoretical maximum value of 100%:

- without SPIRO CARD LEVEL 3: 28,47%
- after 6 days using SPIRO CARD LEVEL 3: 38,62%
- after 10 days using SPIRO CARD LEVEL 3: 29,33%
- after 17 days using SPIRO CARD LEVEL 3: 31,49%
- after 22 days using SPIRO CARD LEVEL 3: 39,65%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

*Test subject 19*

*Regulation of the heart rate without SPIRO CARD LEVEL 3*



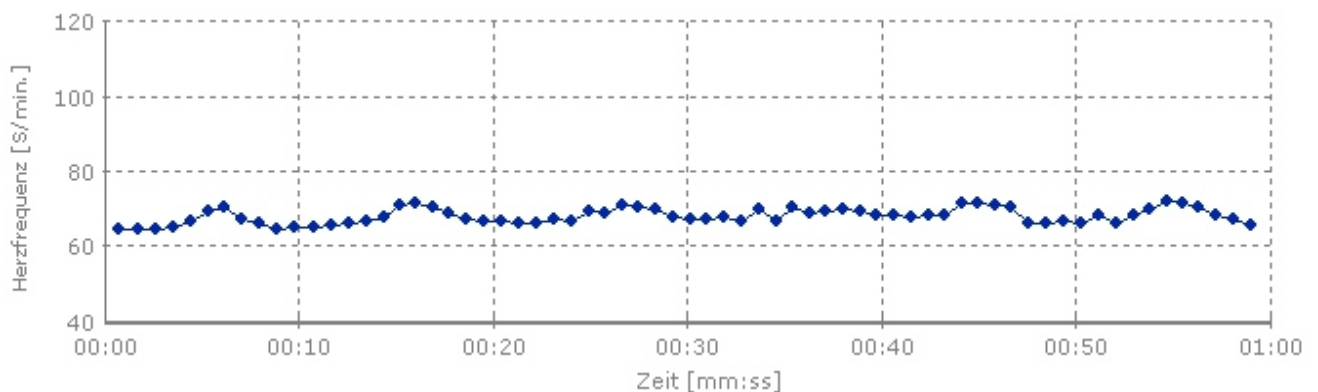


### Measurement results without SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	5,06	bpm	11,07%
RMSSD	21,32	ms	
Average heart rate	66,4	bpm	
Standard deviation	1,65	bpm	
Variation coefficient	2,50	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 11,07% of the theoretical maximum value of 100%.

### Regulation of the heart rate after 3 days using SPIRO CARD LEVEL 3

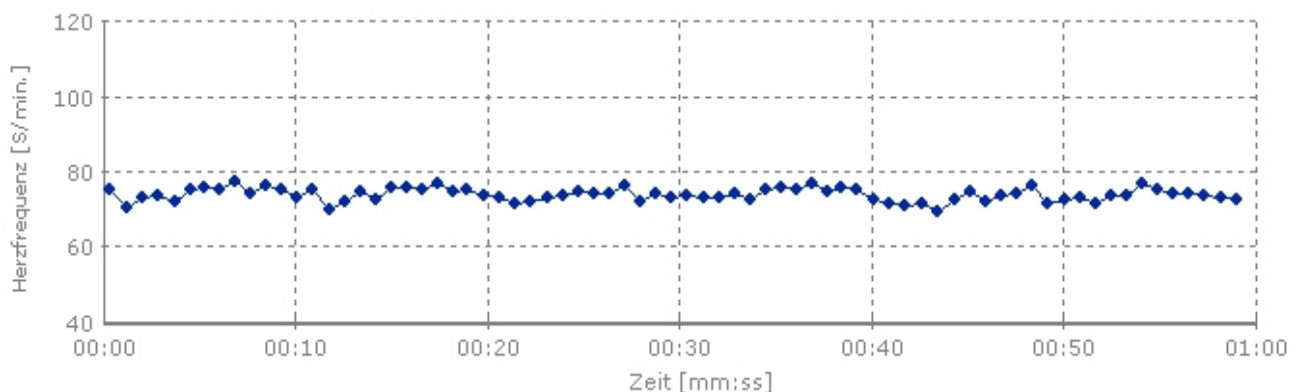


### Measurement results after 3 days using SPIRO CARD LEVEL 3

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	6,21	bpm	12,87%
RMSSD	20,31	ms	
Average heart rate	68,5	bpm	
Standard deviation	2,07	bpm	
Variation coefficient	2,91	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 12,87% of the theoretical maximum value of 100%.

### Regulation of the heart rate after 6 days using SPIRO CARD LEVEL 3

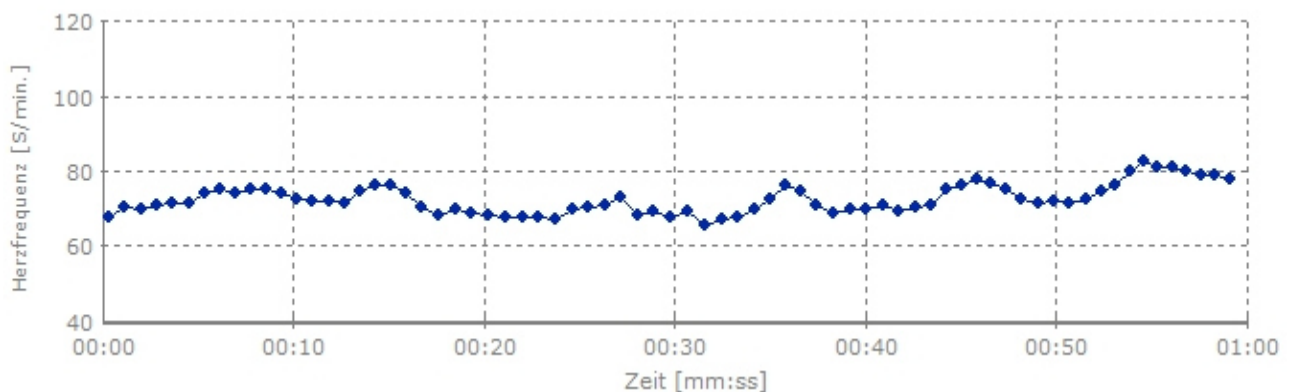


*Measurement results after 6 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	6,70	bpm	13,66%
RMSSD	22,03	ms	
Average heart rate	73,4	bpm	
Standard deviation	1,72	bpm	
Variation coefficient	2,45	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 13,66% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 9 days using SPIRO CARD LEVEL 3*

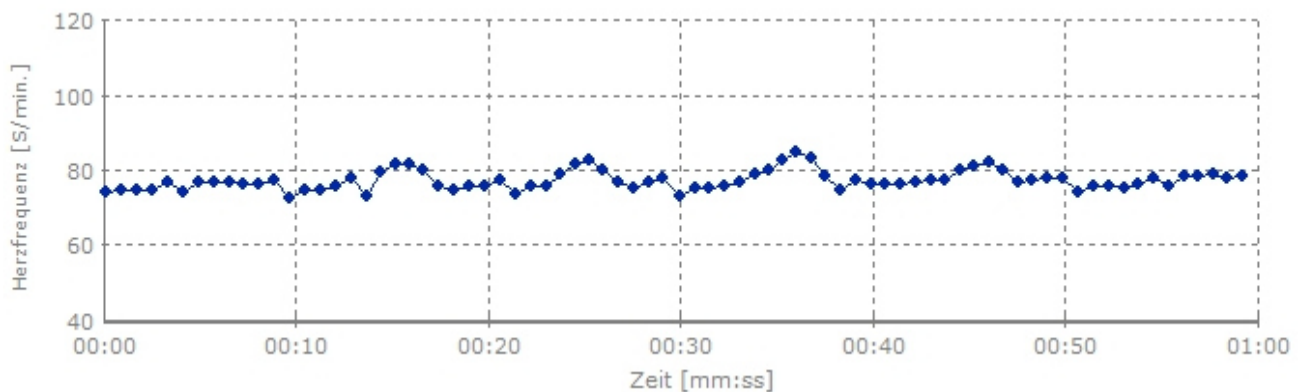


*Measurement results after 9 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	9,00	bpm	15,87%
RMSSD	21,52	ms	
Average heart rate	72,2	bpm	
Standard deviation	3,93	bpm	
Variation coefficient	5,41	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 15,87% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 12 days using SPIRO CARD LEVEL 3*

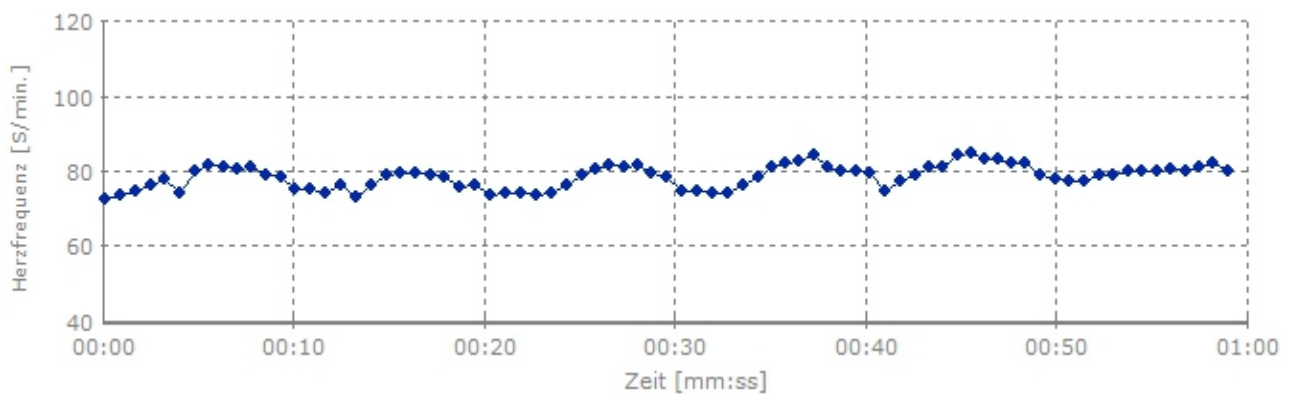


*Measurement results after 12 days using SPIRO CARD LEVEL 3*

	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	8,57	bpm	15,81%
RMSSD	22,42	ms	
Average heart rate	77,1	bpm	
Standard deviation	2,54	bpm	
Variation coefficient	3,32	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 15,81% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 14 days using SPIRO CARD LEVEL 3*



*Measurement results after 14 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	9,45	bpm	17,22%
RMSSD	18,72	ms	
Average heart rate	78,3	bpm	
Standard deviation	3,06	bpm	
Variation coefficient	3,95	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 17,22% of the theoretical maximum value of 100%.

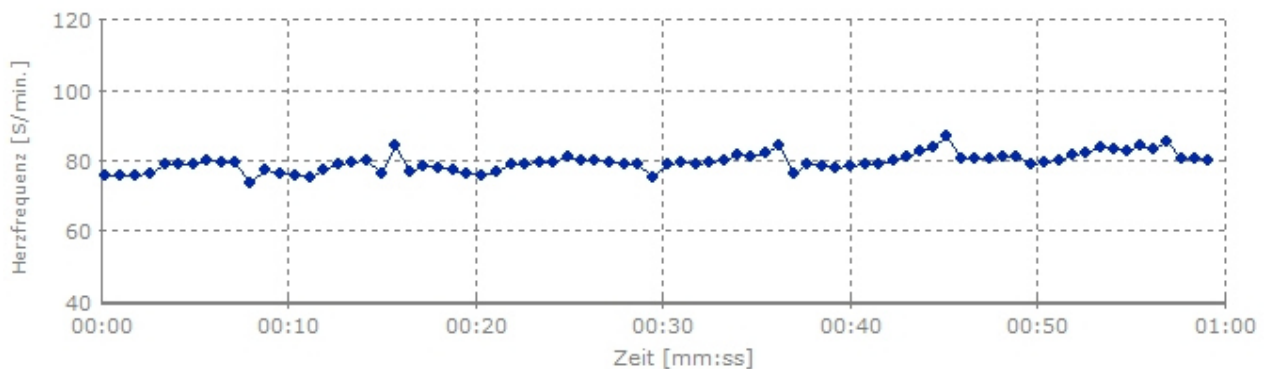
*Summary of the test results:* The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained the following values of the theoretical maximum value of 100%:

- without SPIRO CARD LEVEL 3: 11,07%
- after 3 days using SPIRO CARD LEVEL 3: 12,87%
- after 6 days using SPIRO CARD LEVEL 3: 13,66%
- after 9 days using SPIRO CARD LEVEL 3: 15,87%
- after 12 days using SPIRO CARD LEVEL 3: 15,81%
- after 14 days using SPIRO CARD LEVEL 3: 17,22%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

*Test subject 20*

*Regulation of the heart rate without SPIRO CARD LEVEL 3*

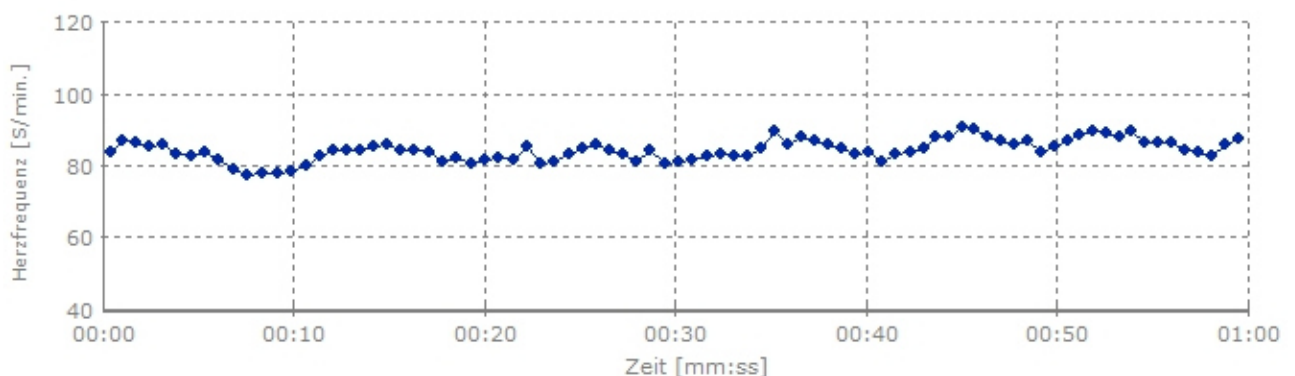


*Measurement results without SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	7,83	bpm	29,57%
RMSSD	20,78	Ms	
Average heart rate	78,1	bpm	
Standard deviation	2,52	bpm	
Variation coefficient	3,06	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 29,57% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 2 days using SPIRO CARD LEVEL 3*

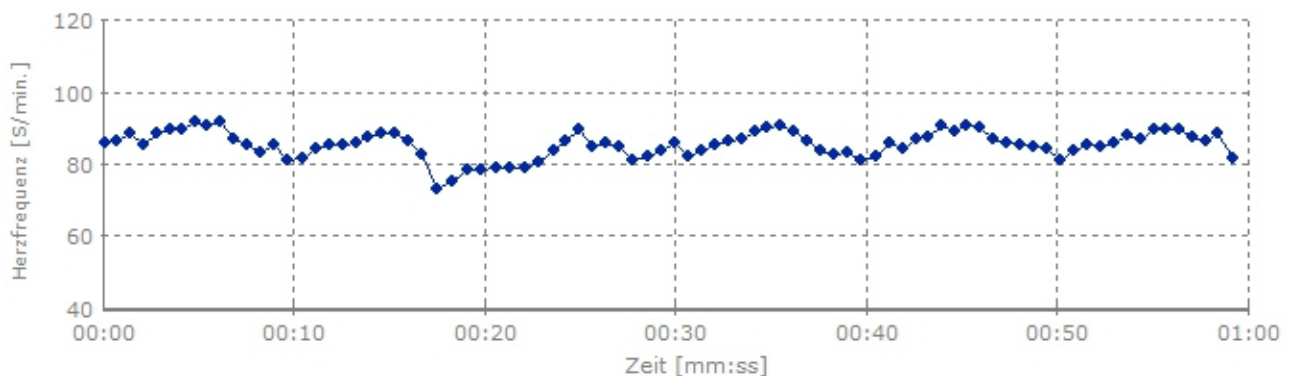


*Measurement results after 2 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	8,96	bpm	30,69%
RMSSD	15,72	Ms	
Average heart rate	84,1	bpm	
Standard deviation	3,05	bpm	
Variation coefficient	3,56	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 30,69% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 4 days using SPIRO CARD LEVEL 3*

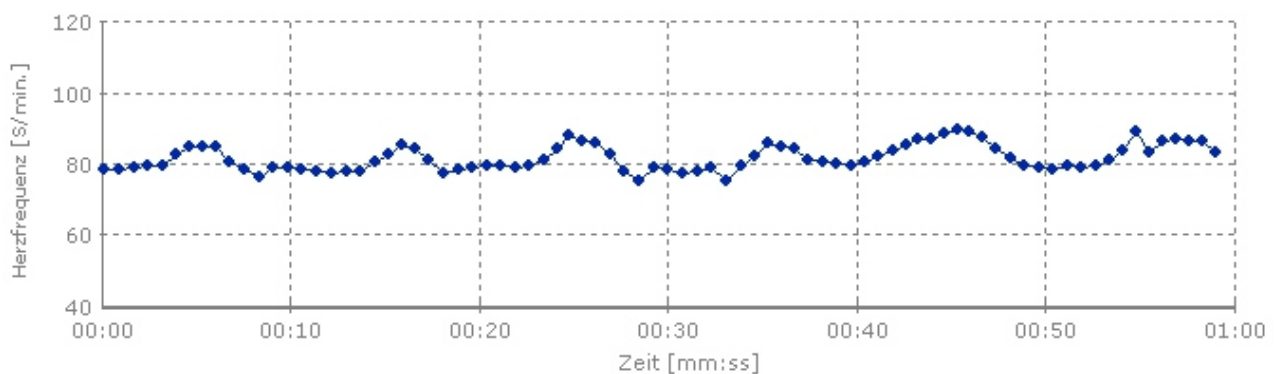


*Measurement results after 4 days using SPIRO CARD LEVEL 3*

	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	10,60	bpm	33,65%
RMSSD	21,02	Ms	
Average heart rate	85,5	bpm	
Standard deviation	3,77	bpm	
Variation coefficient	4,34	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 33,65% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 7 days using SPIRO CARD LEVEL 3*

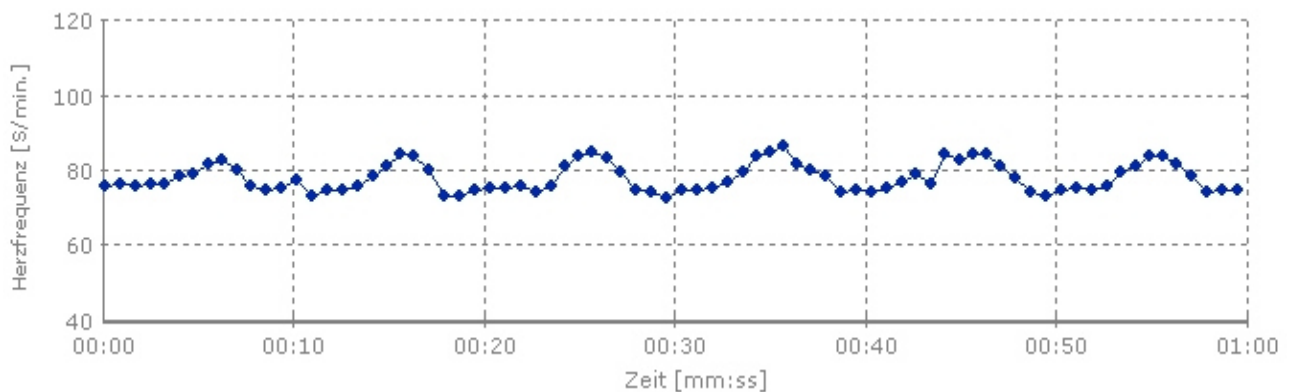


*Measurement results after 7 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	10,69	bpm	33,90%
RMSSD	19,22	Ms	
Average heart rate	81,5	bpm	
Standard deviation	3,63	bpm	
Variation coefficient	4,41	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 33,90% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 12 days using SPIRO CARD LEVEL 3*

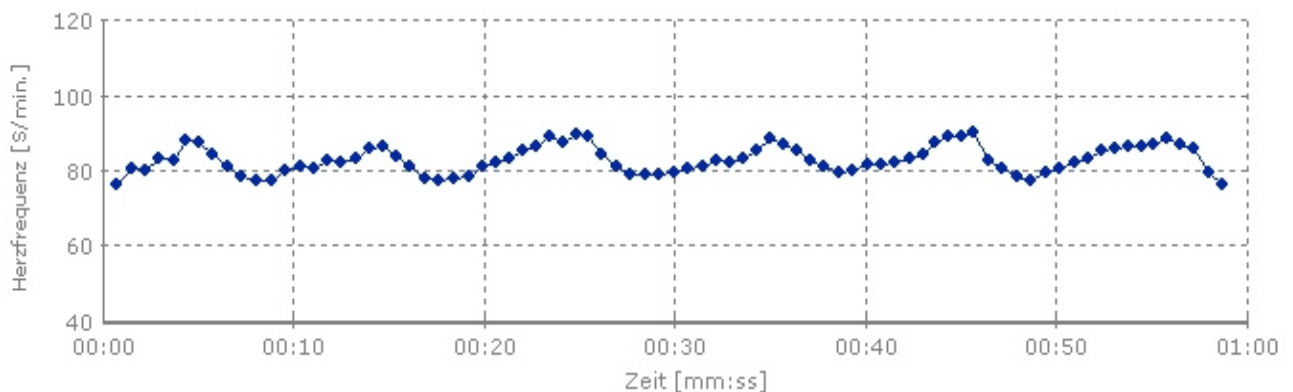


*Measurement results after 12 days using SPIRO CARD LEVEL 3*

<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Rank/Age</i>
Resp. sinus arrhythmia (RSA)	11,69	bpm	36,21%
RMSSD	24,61	Ms	
Average heart rate	77,4	bpm	
Standard deviation	3,73	bpm	
Variation coefficient	4,82	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 36,21% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 15 days using SPIRO CARD LEVEL 3*

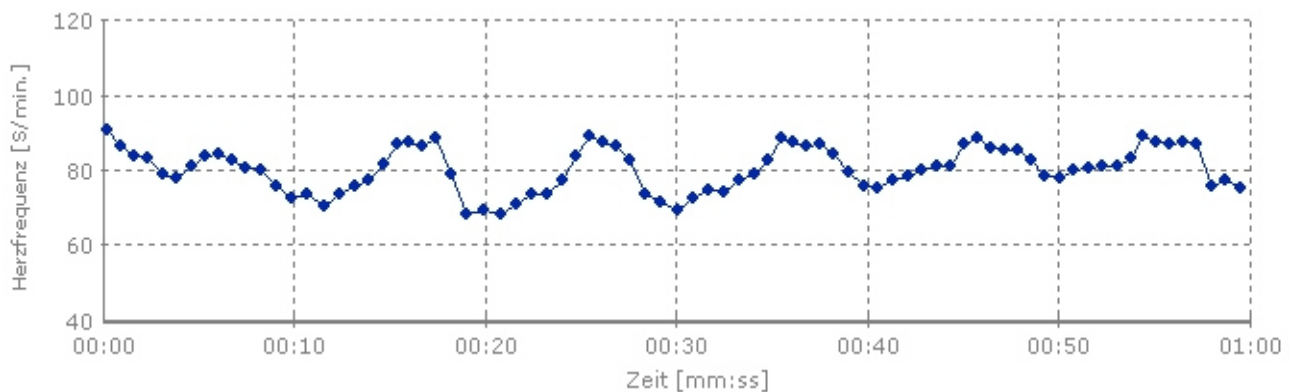


*Measurement results after 15 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	13,47	bpm	39,51%
RMSSD	48,02	ms	
Average heart rate	77,2	bpm	
Standard deviation	5,94	bpm	
Variation coefficient	7,66	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 39,51% of the theoretical maximum value of 100%.

*Regulation of the heart rate after 18 days using SPIRO CARD LEVEL 3*



*Measurement results after 18 days using SPIRO CARD LEVEL 3*

Parameter	Value	Unit	Rank/Age
Resp. sinus arrhythmia (RSA)	19,63	bpm	46,65%
RMSSD	33,14	ms	
Average heart rate	80,2	bpm	
Standard deviation	5,88	bpm	
Variation coefficient	7,22	%	

The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained 46,65% of the theoretical maximum value of 100%.

*Summary of the test results:* The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained the following values of the theoretical maximum value of 100%:

- without SPIRO CARD LEVEL 3: 29,57%
- after 2 days using SPIRO CARD LEVEL 3: 30,69%
- after 4 days using SPIRO CARD LEVEL 3: 33,65%
- after 7 days using SPIRO CARD LEVEL 3: 33,90%
- after 12 days using SPIRO CARD LEVEL 3: 36,21%

after 15 days using SPIRO CARD LEVEL 3: 39,51%  
after 18 days using SPIRO CARD LEVEL 3: 46,65%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

#### **4. Summarised evaluation of all test results of the biophysical investigation into the SPIRO CARD LEVEL 3 in conjunction with the biofeedback system Stress Pilot Plus, with respect to the protective effect against high frequency electromagnetic radiation and electrosmog**

**Test subject 11:** The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained the following values of the theoretical maximum value of 100%:

without SPIRO CARD LEVEL 3:	3,17%
after 3 days using SPIRO CARD LEVEL 3:	4,41%
after 7 days using SPIRO CARD LEVEL 3:	7,22%
after 15 days using SPIRO CARD LEVEL 3:	22,30%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

**Test subject 12:** The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained folgende Valuee of the theoretical maximum value of 100%:

without SPIRO CARD LEVEL 3:	6,12%
after 3 days using SPIRO CARD LEVEL 3:	8,10%
after 7 days using SPIRO CARD LEVEL 3:	10,20%
after 11 days using SPIRO CARD LEVEL 3:	9,18%
after 13 days using SPIRO CARD LEVEL 3:	8,68%
after 17 days using SPIRO CARD LEVEL 3:	8,96%
after 19 Tagen mit SPIRO CARD LEVEL3:	9,12%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.



**Test subject 13:** The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained folgende Valuee of the theoretical maximum value of 100%:

without SPIRO CARD LEVEL 3:	29,38%
after 5 days using SPIRO CARD LEVEL 3:	34,64%
after 9 days using SPIRO CARD LEVEL 3:	46,15%
after 13 days using SPIRO CARD LEVEL 3:	52,80%
after 16 days using SPIRO CARD LEVEL 3:	59,21%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

**Test subject 14:** The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained folgende Valuee of the theoretical maximum value of 100%:

without SPIRO CARD LEVEL 3:	38,52%
after 4 days using SPIRO CARD LEVEL 3:	39,01%
after 7 days using SPIRO CARD LEVEL 3:	41,64%
after 9 days using SPIRO CARD LEVEL 3:	42,45%
after 11 days using SPIRO CARD LEVEL 3:	42,02%
after 12 days using SPIRO CARD LEVEL 3:	42,30%
after 14 days using SPIRO CARD LEVEL 3:	43,11%
after 19 days using SPIRO CARD LEVEL 3:	59,39%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

**Test subject 15:** The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained folgende Valuee of the theoretical maximum value of 100%:

without SPIRO CARD LEVEL 3:	29,38%
after 6 days using SPIRO CARD LEVEL 3:	34,64%
after 10 days using SPIRO CARD LEVEL 3:	47,59%
after 12 days using SPIRO CARD LEVEL 3:	43,22%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the

work of the vegetative nervous system required in order to maintain the internal balance.

**Test subject 16:** The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained folgende Valuee of the theoretical maximum value of 100%:

without SPIRO CARD LEVEL 3:	32,41%
after 6 days using SPIRO CARD LEVEL 3:	39,86%
after 10 days using SPIRO CARD LEVEL 3:	34,11%
after 12 days using SPIRO CARD LEVEL 3:	43,22%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

**Test subject 17:** The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained folgende Valuee of the theoretical maximum value of 100%:

without SPIRO CARD LEVEL 3:	22,12%
after 4 days using SPIRO CARD LEVEL 3:	24,58%
after 5 days using SPIRO CARD LEVEL 3:	25,67%
after 7 days using SPIRO CARD LEVEL 3:	25,18%
after 10 days using SPIRO CARD LEVEL 3:	26,24%
after 12 days using SPIRO CARD LEVEL 3:	27,03%
after 16 days using SPIRO CARD LEVEL 3:	35,40%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

**Test subject 18:** The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained folgende Valuee of the theoretical maximum value of 100%:

without SPIRO CARD LEVEL 3:	28,47%
after 6 days using SPIRO CARD LEVEL 3:	38,62%
after 10 days using SPIRO CARD LEVEL 3:	29,33%
after 17 days using SPIRO CARD LEVEL 3:	31,49%
after 22 days using SPIRO CARD LEVEL 3:	39,65%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in

conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

**Test subject 19:** The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained folgende Valuee of the theoretical maximum value of 100%:

without SPIRO CARD LEVEL 3:	11,07%
after 3 days using SPIRO CARD LEVEL 3:	12,87%
after 6 days using SPIRO CARD LEVEL 3:	13,66%
after 9 days using SPIRO CARD LEVEL 3:	15,87%
after 12 days using SPIRO CARD LEVEL 3:	15,81%
after 14 days using SPIRO CARD LEVEL 3:	17,22%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

**Test subject 20:** The ability of this test subject to regulate the heart rate and to adjust the vegetative nervous system to the existing disturbances caused by electrosmog in this test situation and within this comparison group attained folgende Valuee of the theoretical maximum value of 100%:

without SPIRO CARD LEVEL 3:	29,57%
after 2 days using SPIRO CARD LEVEL 3:	30,69%
after 4 days using SPIRO CARD LEVEL 3:	33,65%
after 7 days using SPIRO CARD LEVEL 3:	33,90%
after 12 days using SPIRO CARD LEVEL 3:	36,21%
after 15 days using SPIRO CARD LEVEL 3:	39,51%
after 18 days using SPIRO CARD LEVEL 3:	46,65%

On the basis of the measurement results it is possible to conclude that the use of the SPIRO CARD LEVEL 3 leads to a verifiable improvement in the heart rate variability in conjunction with disturbances caused by high frequency electromagnetic radiation. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system required in order to maintain the internal balance.

## **5. Award of the IGEF test seal to the SPIRO CARD LEVEL 3**

The results of the biophysical investigation by the IGEF test and research laboratory confirm that the use of the SPIRO CARD LEVEL 3 with health-endangering disturbances caused by high frequency electromagnetic radiation leads to a verifiable improvement in the heart rate variability. This has a beneficial effect on the heart and circulatory system processes and reduces the work of the vegetative nervous system

required in order to maintain the internal balance. The measurement results show that the positive effect of the SPIRO CARD LEVEL 3 increases with the duration of use.

The SPIRO CARD LEVEL 3 is therefore suitable as a protective measure with electromagnetic radiation. However, use of the SPIRO CARD LEVEL 3 cannot replace medical treatment in the event of illness.

The requirements of the Internationale Gesellschaft für Elektromog-Forschung IGEF for awarding the IGEF test seal are fulfilled.



The award of the IGEF test seal to the SPIRO CARD LEVEL 3 takes place on the basis of an agreement with the Internationale Gesellschaft für Elektromog-Forschung IGEF governing the commercial use of the IGEF test seal, in which the conditions for using the IGEF test seal are stipulated.

Dipl.-BW Wulf-Dietrich Rose  
Internationale Gesellschaft für Elektromog-Forschung IGEF  
IGEF certification centre

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