INTERNATIONALE GESELLSCHAFT FÜR ELEKTROSMOG-FORSCHUNG IGEF LTD

INTERNATIONAL ASSOCIATION FOR ELECTROSMOG-RESEARCH IGEF LTD

IGEF CERTIFICATION CENTRE

R E P O R T

on the biophysical testing

of the SPIRO Level 5

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:

NOXTAK Technologies; Sun Plaza; 401 M; Oranjestad; Aruba; Dutch Caribbean

Report generation date: 1th March 2016

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 electro-magnetic 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 frequencies 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 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 Level 5 is suitable for providing protection against the harmful effects of high frequency electromagnetic radiation and electrosmog.

2. Investigation of the SPIRO Level 5 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 Level 5 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 tinniest 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 tinniest 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.

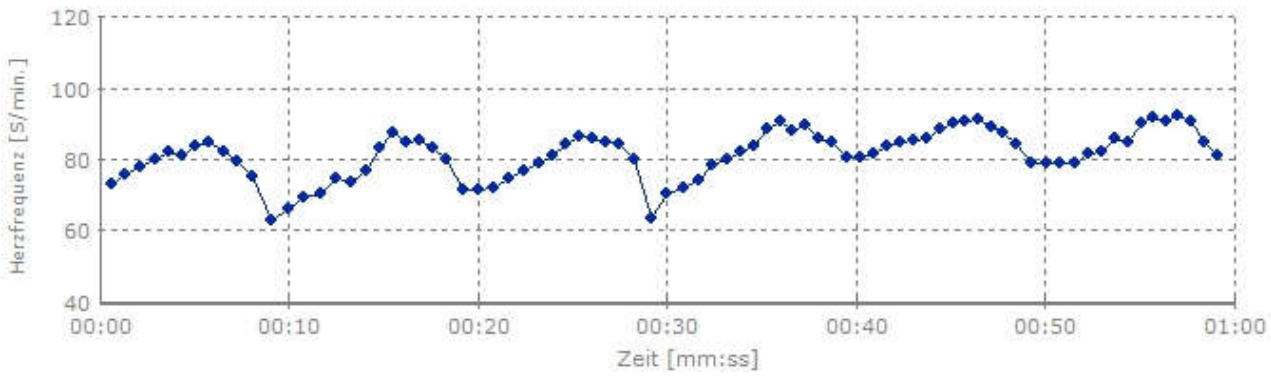
Measurement of the heart rate variability was therefore selected as a diagnostic system, in order to assess whether the energetic information field of the SPIRO Level 5 leads to an improvement in the heart rate variability of the test subjects, and is therefore able to contribute to an increase in the individual ability of the biological system to adjust.

The use of the SPIRO Level 5 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 Level 5* 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 Level 5 through the measurement of the heart rate variability and this data was evaluated according to mathematical-statistical processes.

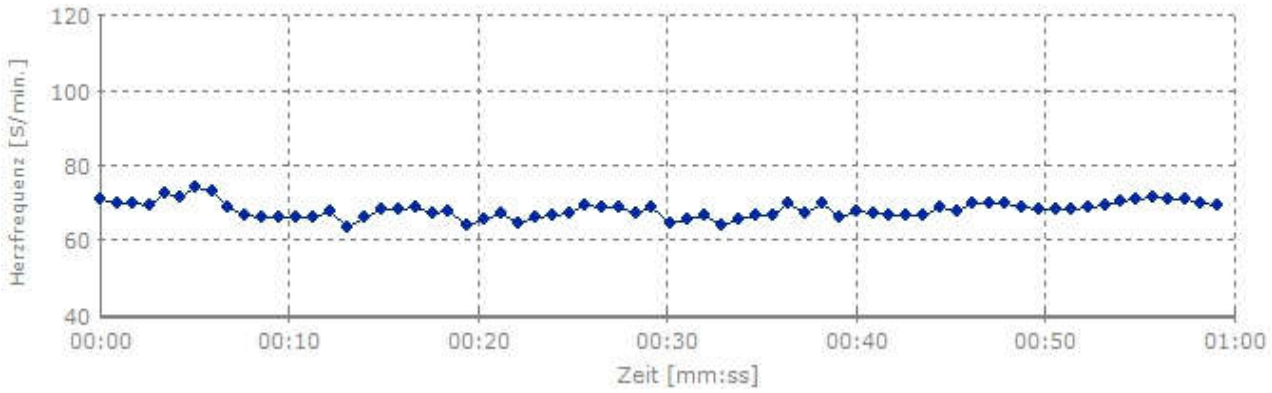
Optimum regulation of the heart rate (example)



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 Level 5 and then once again after a few days spent using the SPIRO Level 5.

3.2. Selected measuring device

The biofeedback system *Stress Pilot Plus* was used in order to biophysically test the energetic effects of the SPIRO Level 5. 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.

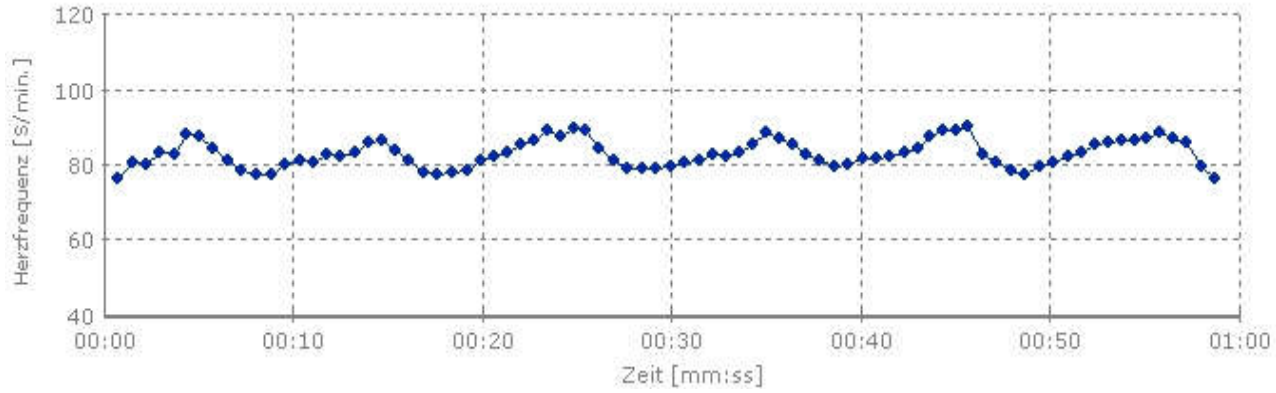
3.3. Explanation of the measurement log parameters

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.

3.4. Measurement results after days using SPIRO Level 5

Test subject 1, female, very high-frequency radiation exposure due to a constantly pulsing DECT cordless phone in the apartment and a mobile phone transmitter at a distance of approx. 150 metres. A SPIRO Level 5 was placed in the living room on a table during the day, and in the bedroom on a cabinet 2 metres from the bed at night.

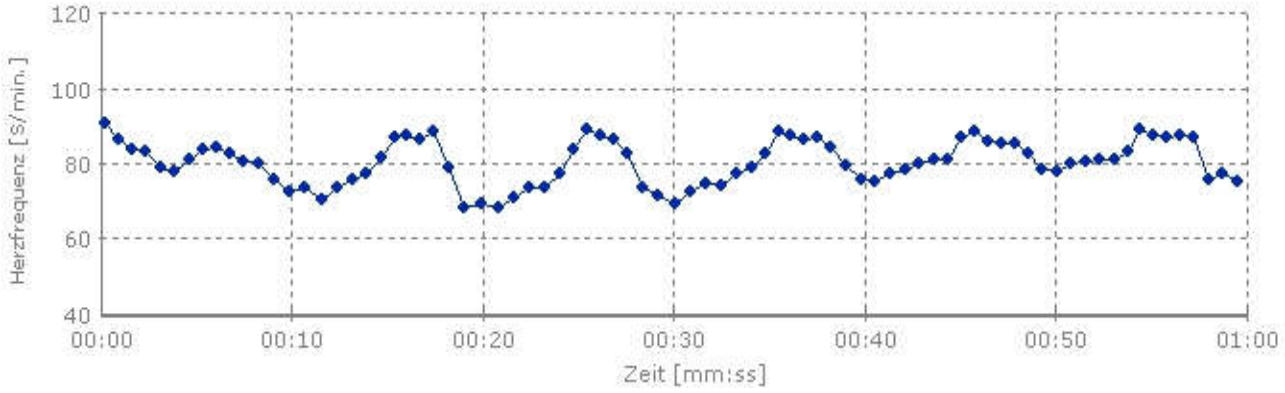
Regulation of the heart rate without SPIRO Level 5



Measurement results without SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	8,44	bpm	51,08%

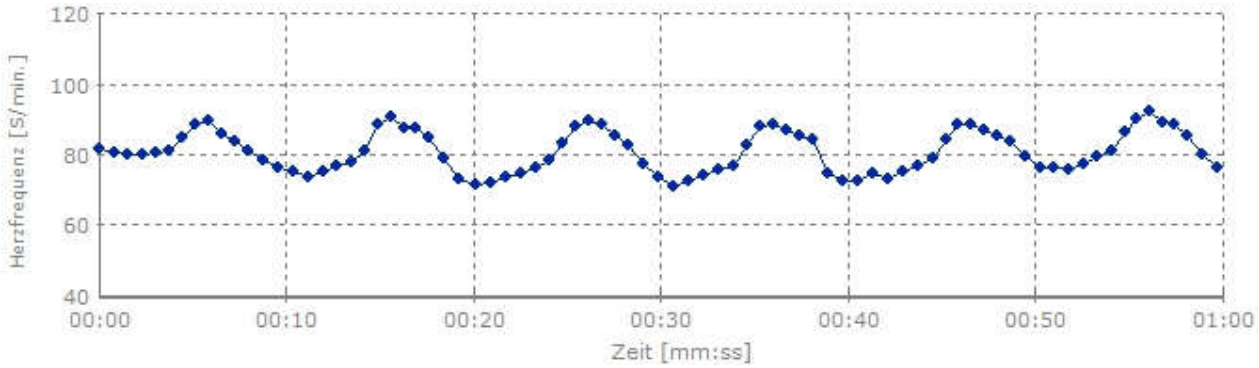
Regulation of the heart rate after 12 days using SPIRO Level 5



Measurement results after 12 days using SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	11,45	bpm	65,40%

Regulation of the heart rate after 30 days using SPIRO Level 5



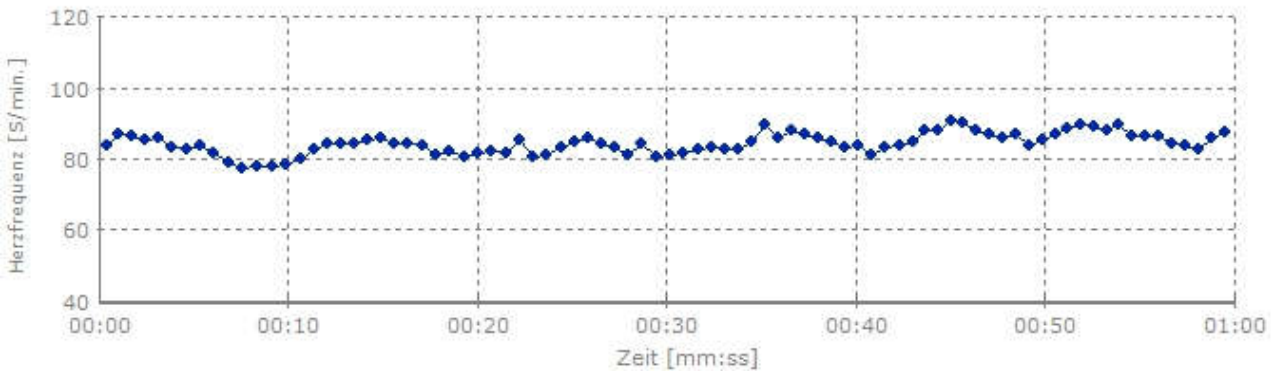
Measurement results after 30 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	19,63	bpm	78,12%

Evaluation of the test results: With this test subject, the use of a SPIRO Level 5 during the 30-day test phase led to an age group-related improvement in the variability of the heart rate from 51.08% to 78.12%. It is therefore possible to assume a significant reduction in the chronic stress caused by high-frequency electromagnetic radiation.

Test subject 2, male, high-frequency radiation exposure in the apartment and in the workplace due to a mobile phone transmitter and airport radar. A SPIRO Level 5 was placed in the middle of the bedroom and a further SPIRO Level 5 was placed in the workplace, adjacent to the desk.

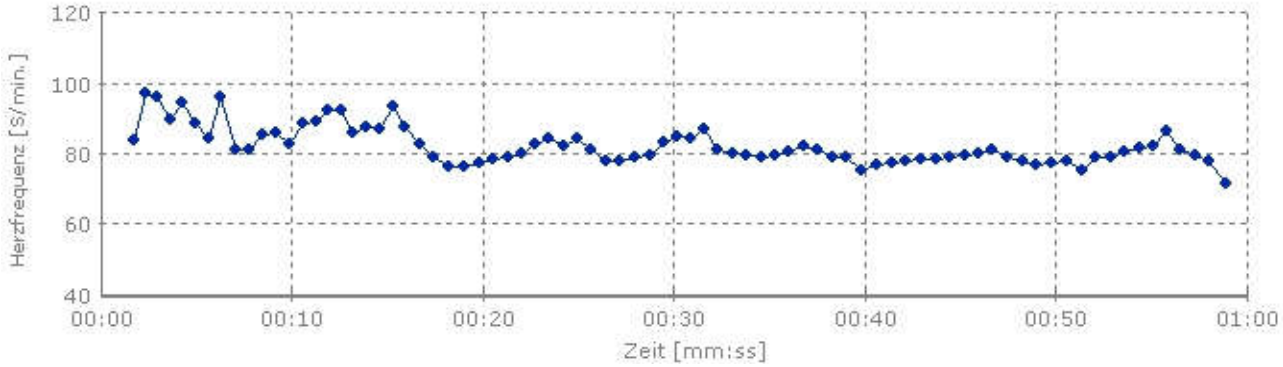
Regulation of the heart rate without SPIRO Level 5



Measurement results without SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	8,57	bpm	21,13%

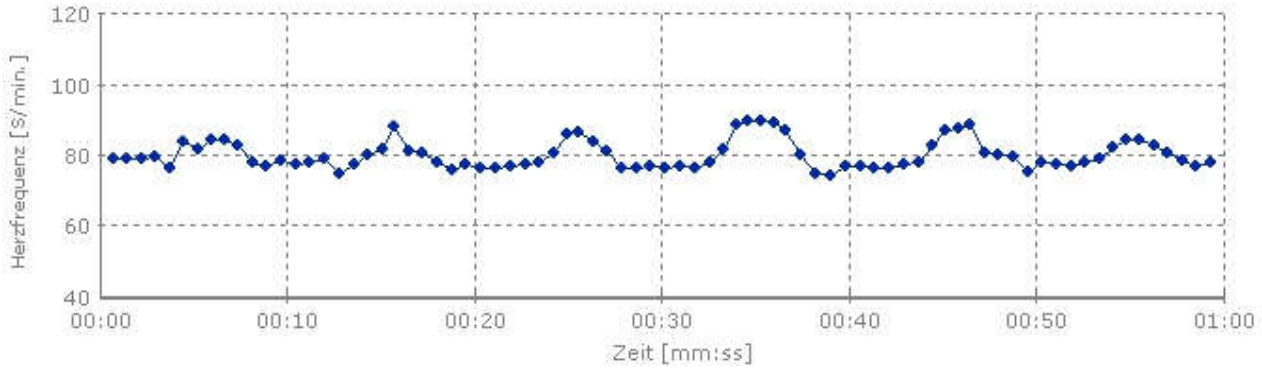
Regulation of the heart rate after 16 days using SPIRO Level 5



Measurement results after 16 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	14,64	bpm	36,12%

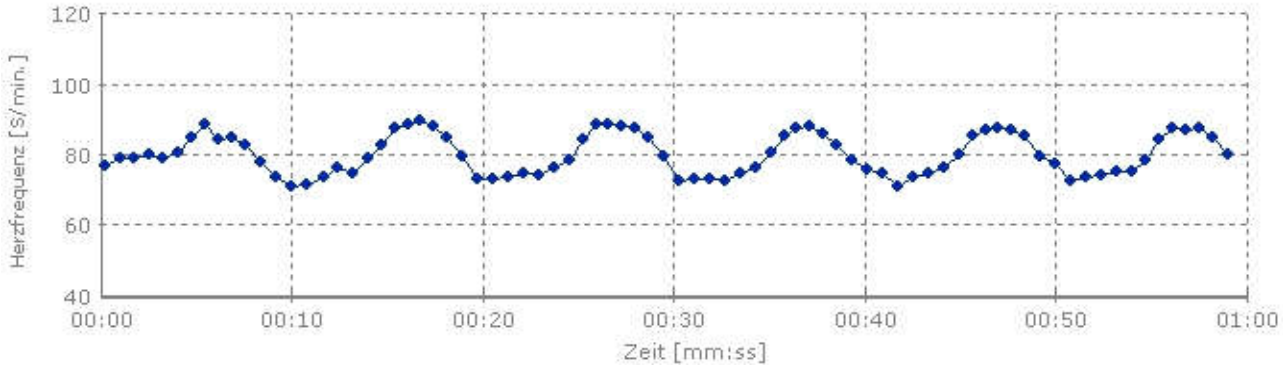
Regulation of the heart rate after 22 days using SPIRO Level 5



Measurement results after 22 days using SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	12,95	bpm	34,72%

Regulation of the heart rate after 28 days using SPIRO Level 5



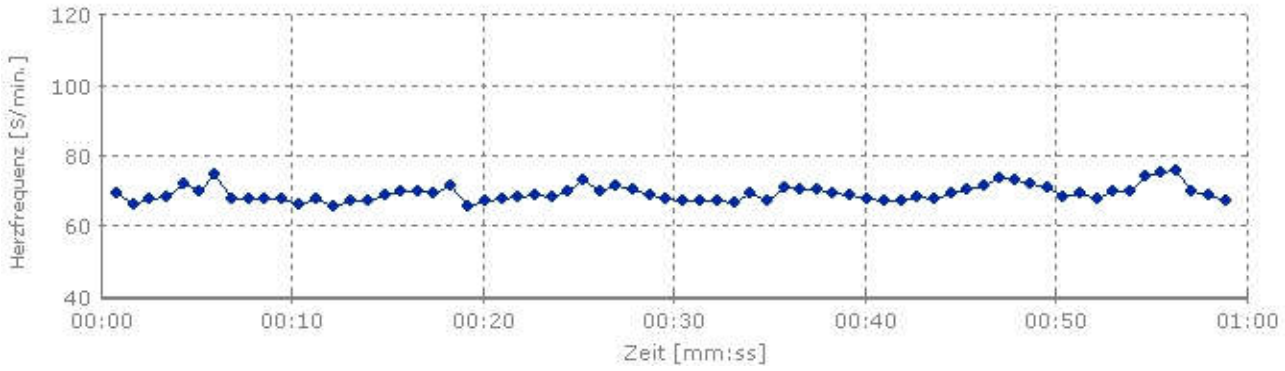
Measurement results after 28 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	15,81	bpm	41,36%

Evaluation of the test results: With this test subject, the use of a SPIRO Level 5 during the 28-day test phase led to an age group-related improvement in the variability of the heart rate from 21,13% to 41,36%. It is therefore possible to assume a significant reduction in the chronic stress caused by high-frequency electromagnetic radiation.

Test subject 3, female, high-frequency radiation exposure in the apartment due to a mobile phone transmitter at a distance of approx. 100 metres. Low-frequency electrosmog due to an underground heavy current power cable in the road in front of the building. The SPIRO Level 5 was placed at the centre of the apartment.

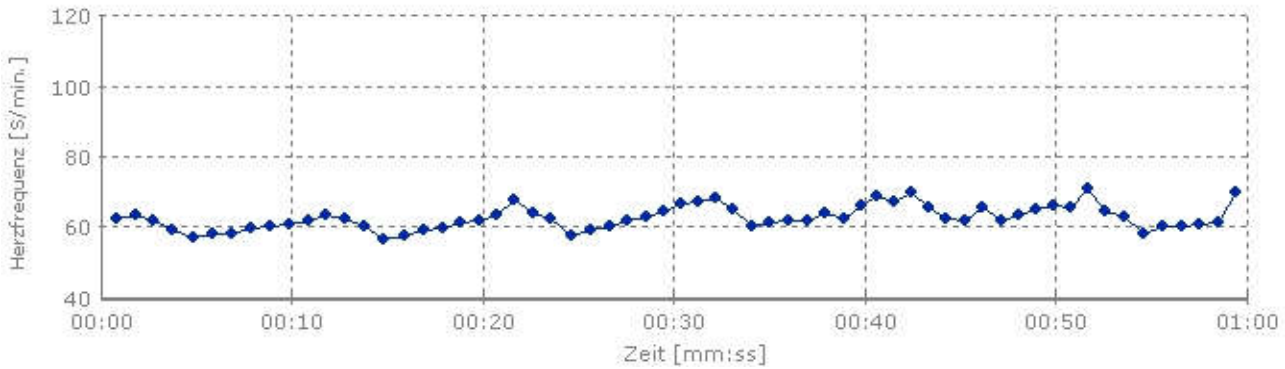
Regulation of the heart rate without SPIRO Level 5



Measurement results without SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	6,13	bpm	22,48%

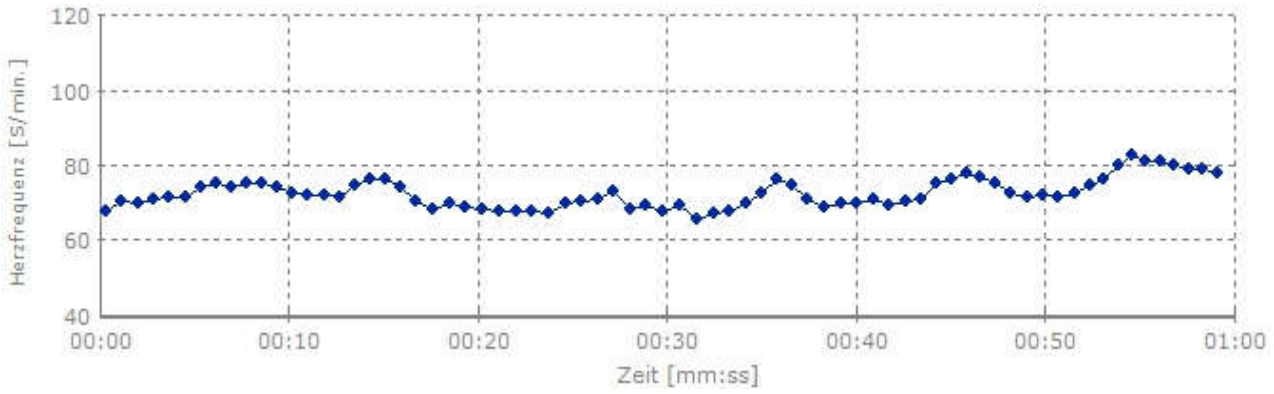
Regulation of the heart rate after 12 days using SPIRO Level 5



Measurement results after 12 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	8,25	bpm	27,22%

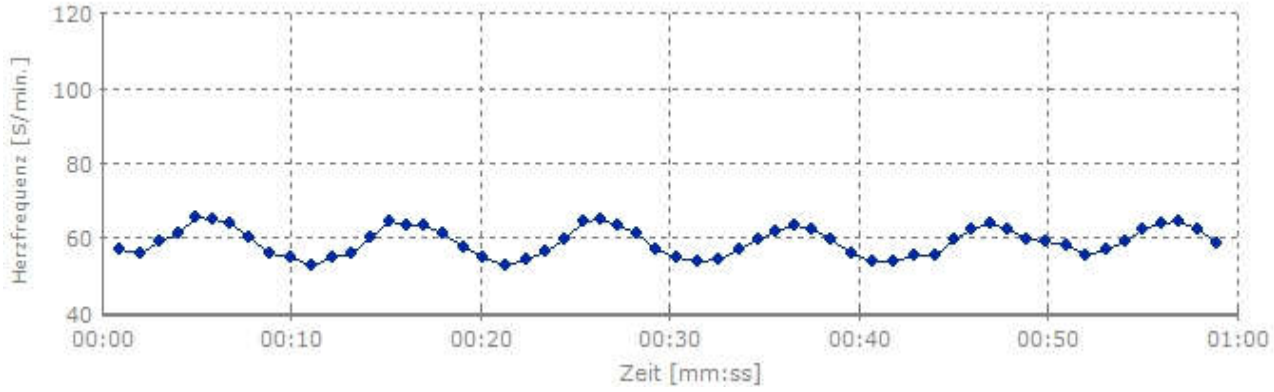
Regulation of the heart rate after 25 days using SPIRO Level 5



Measurement results after 25 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	10,89	bpm	35,22%

Regulation of the heart rate after 28 days using SPIRO Level 5



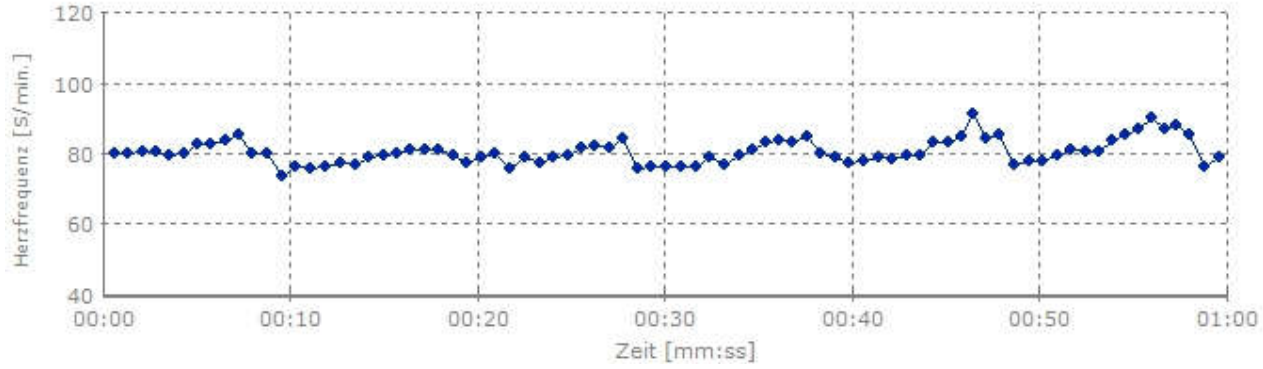
Measurement results after 28 days using SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	12,94	bpm	38,11%

Evaluation of the test results: With this test subject, the use of a SPIRO Level 5 during the 28-day test phase led to an age group-related improvement in the variability of the heart rate from 22,48% to 38,11%. It is therefore possible to assume a significant reduction in the chronic stress caused by high-frequency electromagnetic radiation.

Test subject 4, male, the apartment is situated in close proximity to a high voltage power line. WLAN at the workplace, in an open-plan office. The SPIRO Level 5 was positioned at the workplace. A second SPIRO Level 5 was placed in the bedroom.

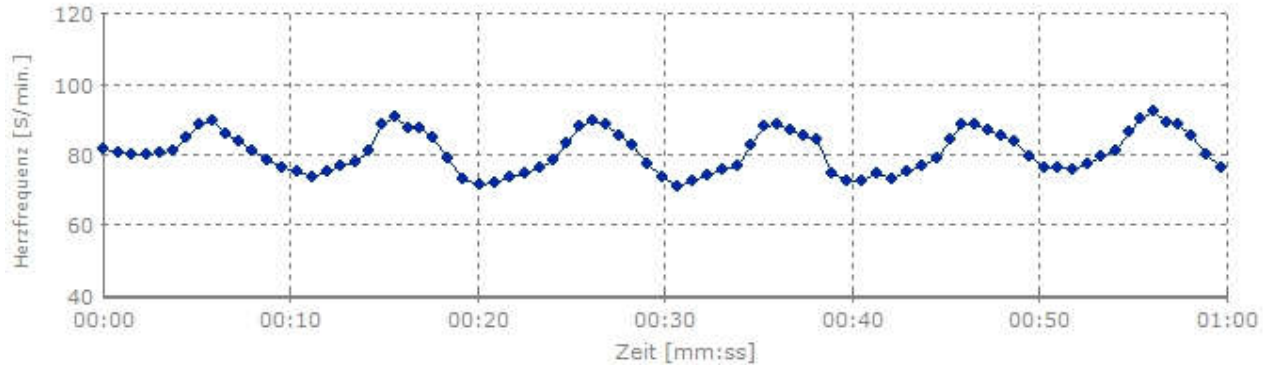
Regulation of the heart rate without SPIRO Level 5



Measurement results without SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	10,44	bpm	32,40%

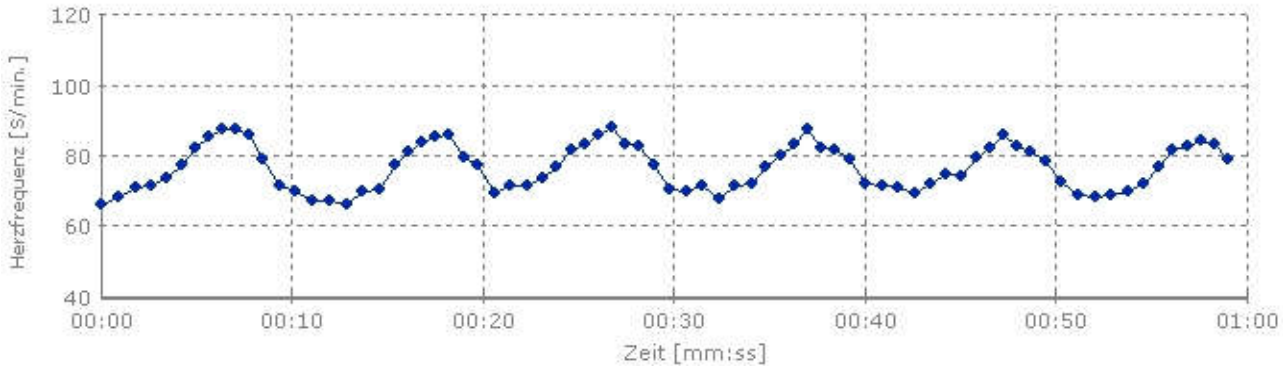
Regulation of the heart rate after 12 days using SPIRO Level 5



Measurement results after 12 days using SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	16,13	bpm	48,22%

Regulation of the heart rate after 30 days using SPIRO Level 5



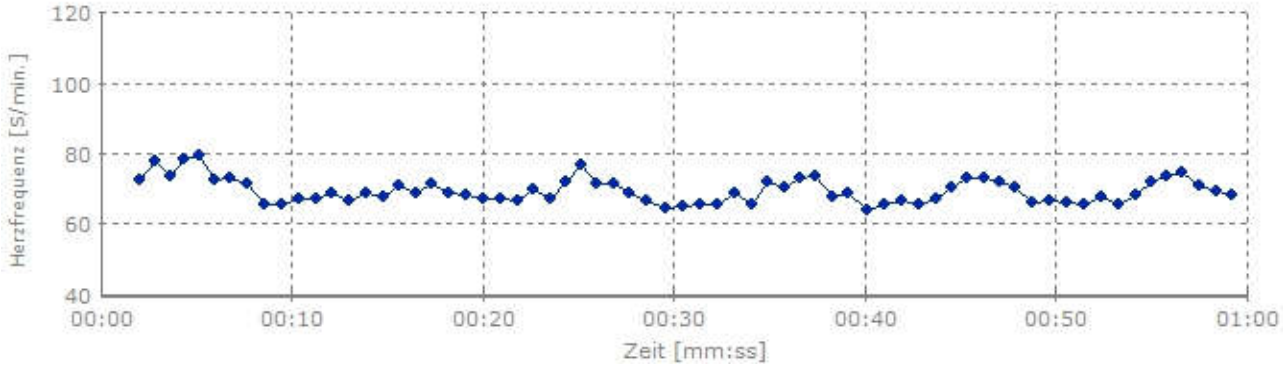
Measurement results after 30 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	19,68	bpm	61,17%

Evaluation of the test results: With this test subject, the use of a SPIRO Level 5 during the 30-day test phase led to an age group-related improvement in the variability of the heart rate from 32,40% to 61,17%. It is therefore possible to assume a significant reduction in the chronic stress caused by high-frequency electromagnetic radiation.

Test subject 5, female, electrosmog exposure in the apartment due to old power lines. High-frequency radiation exposure at the workplace due to airport radar. A SPIRO Level 5 was positioned on the desk in the workplace. After 3 days a second SPIRO Level 5 was placed in the bedroom beneath the bed.

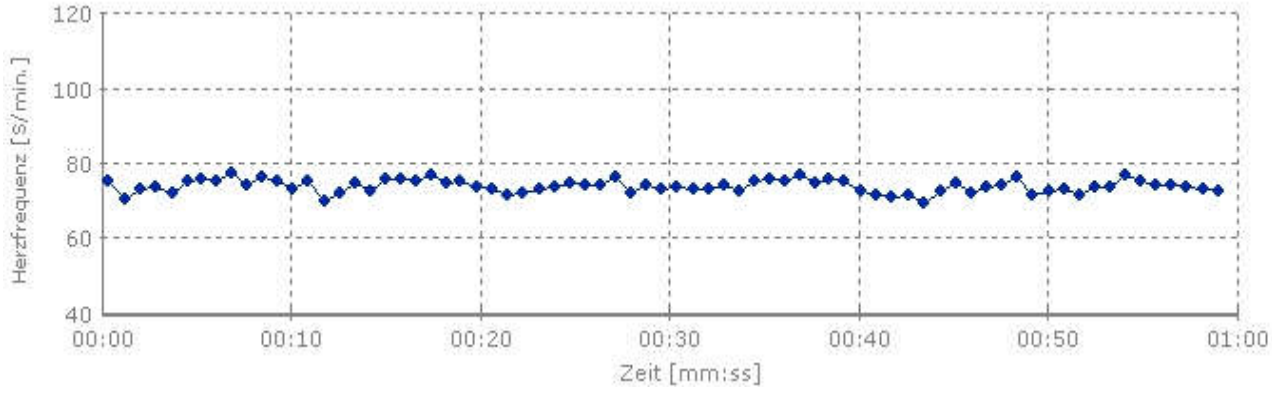
Regulation of the heart rate without SPIRO Level 5



Regulation of the heart rate without SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	7,24	bpm	9,55%

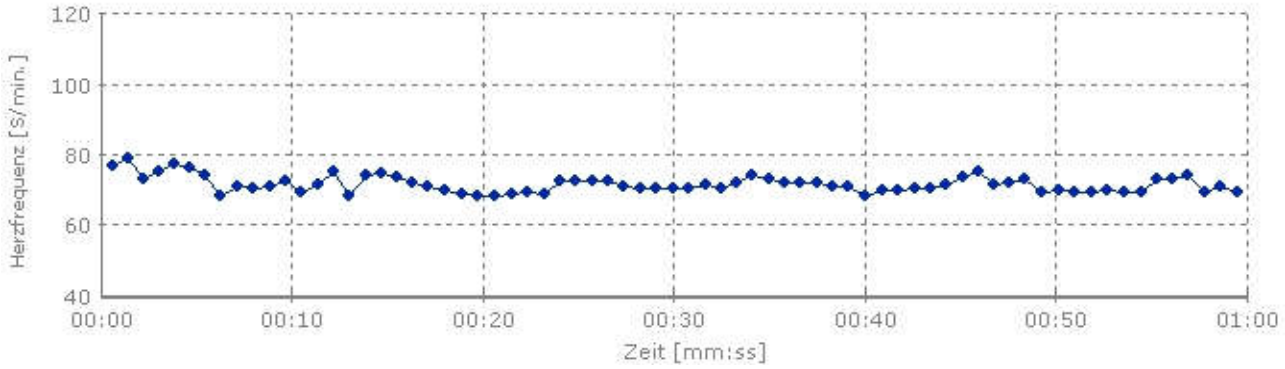
Regulation of the heart rate after 12 days using SPIRO Level 5



Measurement results after 12 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	7,82	bpm	10,20%

Regulation of the heart rate after 31 days using SPIRO Level 5



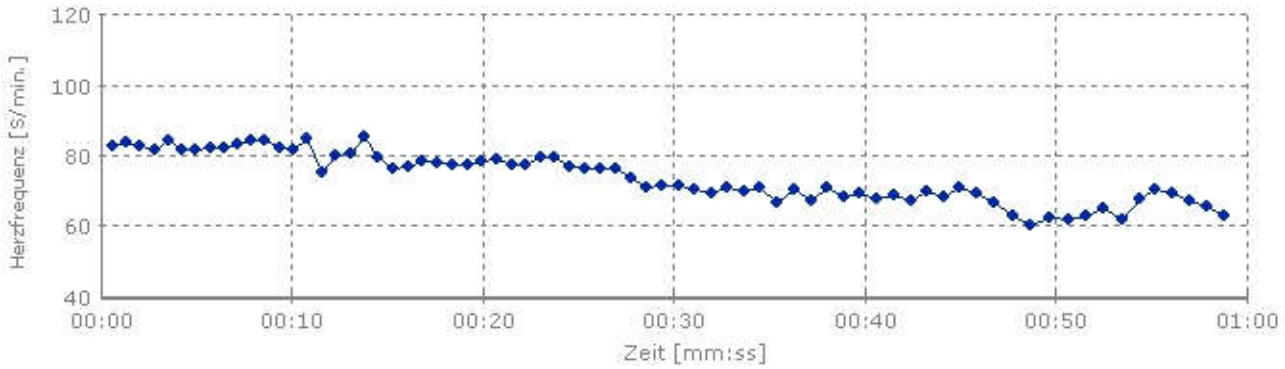
Measurement results after 31 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	7,14	bpm	9,48%

Evaluation of the test results: The ability of the subject to the regulation of the heart rate after days using SPIRO Level 5 and to adjust the autonomic nervous system to the existing burden of electro smog worsened from previously 9.55% after 31 days at 9,48%. It must be concluded that the SPIRO Level 5 adverse effect on this subject on the cardiovascular processes and the autonomic nervous system. When the test subject was questioned, it became apparent that the individual was fitted with a pacemaker.

Test subject 6, female, high-frequency radiation exposure in the apartment due to a constantly pulsing DECT cordless phone. The bedroom is situated close to a transformer station. The SPIRO Level 5 was placed in the living room during the day and beneath the test subject's bed at night.

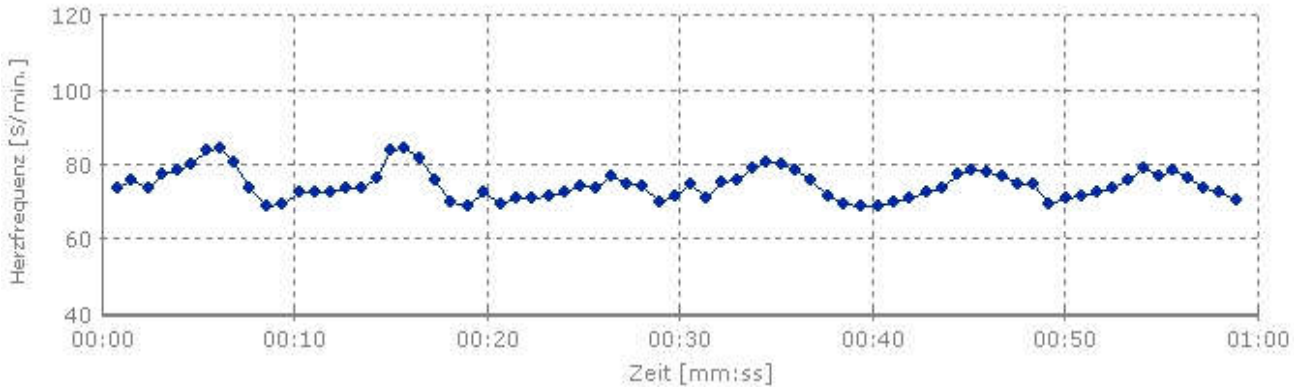
Regulation of the heart rate without SPIRO Level 5



Measurement results without SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	8,28	bpm	57,92%

Regulation of the heart rate after 27 days using SPIRO Level 5



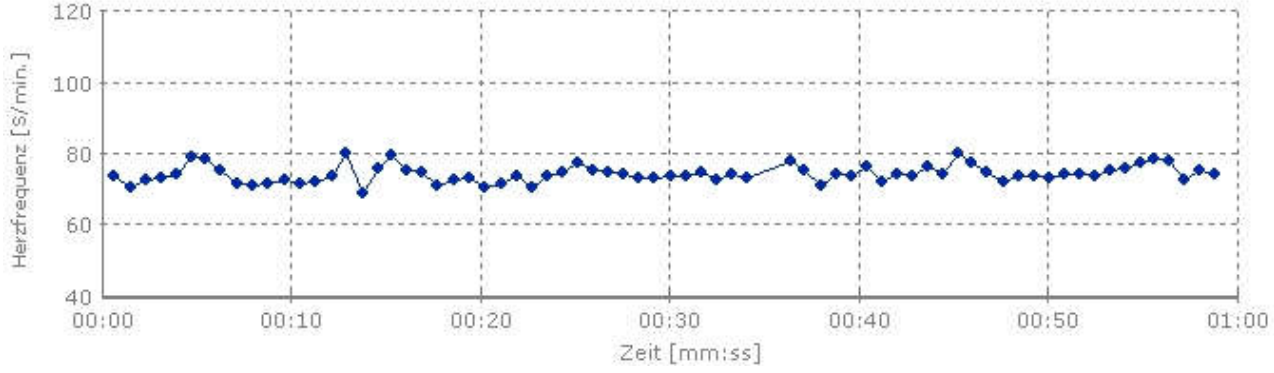
Measurement results after 27 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	11,21	bpm	85,17%

Evaluation of the test results: With this test subject, the use of a SPIRO Level 5 during the 27-day test phase led to an age group-related improvement in the variability of the heart rate from 57,92% to 85,17%. It is therefore possible to assume a significant reduction in the chronic stress caused by high-frequency electromagnetic radiation.

Test subject 7, female, extreme exposure in the apartment due to a mobile phone transmitter and low-frequency electrosmog due to old non-earthed power lines. A SPIRO Level 5 was used in the living area.

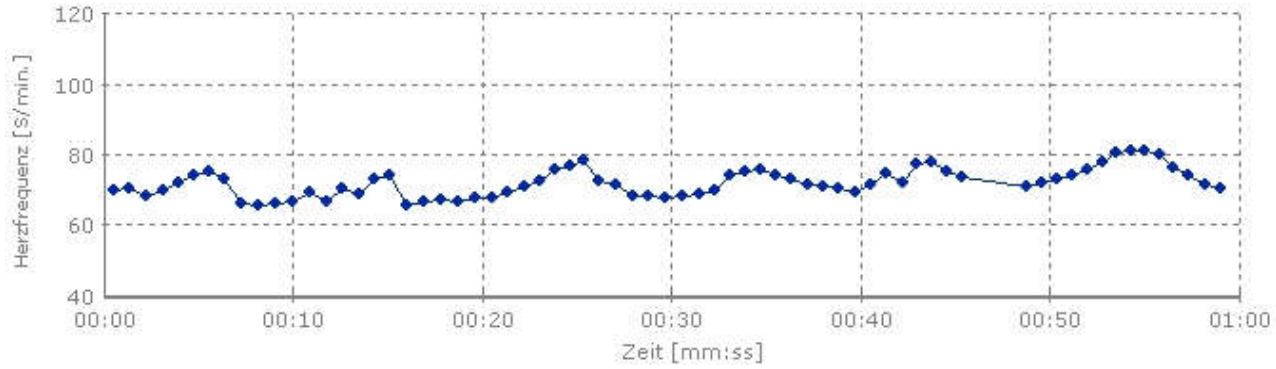
Regulation of the heart rate without SPIRO Level 5



Measurement results without SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	8,44	bpm	51,08%

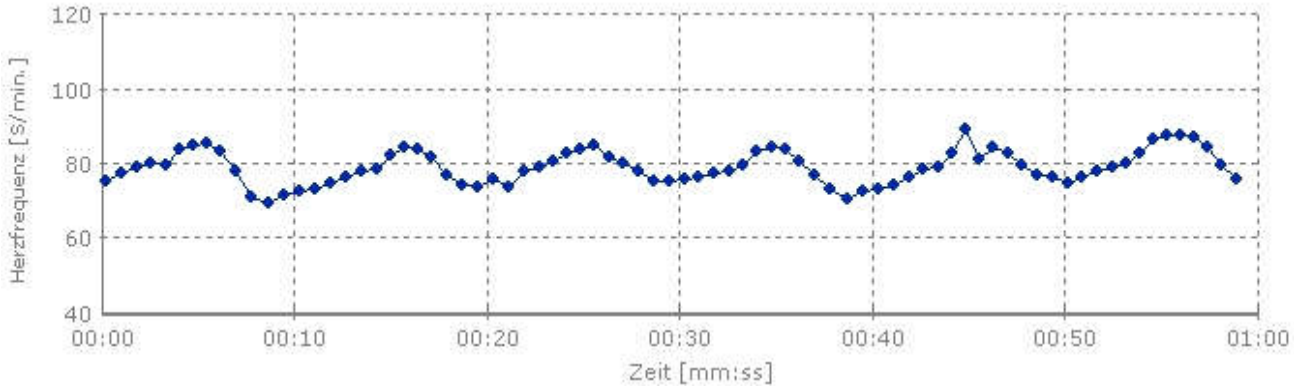
Regulation of the heart rate after 9 days using SPIRO Level 5



Measurement results after 9 days using SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	9,42	bpm	63,77%

Regulation of the heart rate after 18 days using SPIRO Level 5



Measurement results after 18 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	13,66	bpm	82,49%

Evaluation of the test results: With this test subject, the use of a SPIRO Level 5 during the 18-day test phase led to an age group-related improvement in the variability of the heart rate from 51,08% to 82,49%. It is therefore possible to assume a significant reduction in the chronic stress caused by high-frequency electromagnetic radiation.

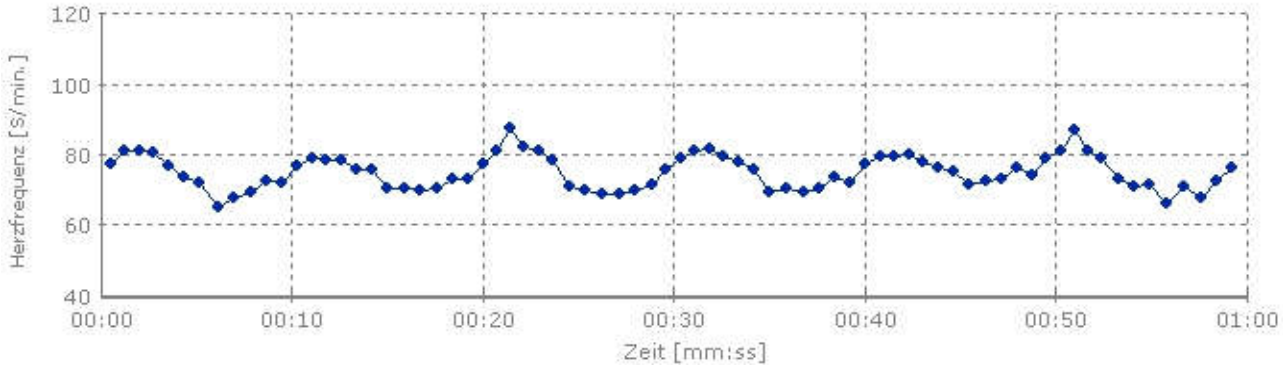
Test subject 8, male, high-frequency radiation exposure in the apartment due to a mobile phone transmitter at a distance of approx. 150 metres. Low-frequency electrosmog due to an underground power cable in the road in front of the building. The SPIRO Level 5 was placed on a table at the centre of the apartment.

Regulation of the heart rate without SPIRO Level 5

Measurement results without SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	10,42	bpm	38,71%

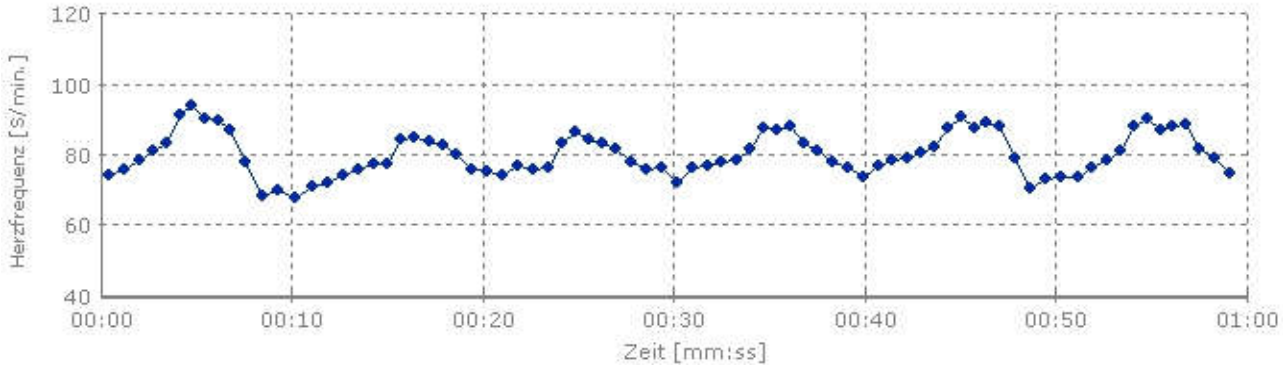
Regulation of the heart rate after 8 days using SPIRO Level 5



Measurement results after 8 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	14,43	bpm	46,15%

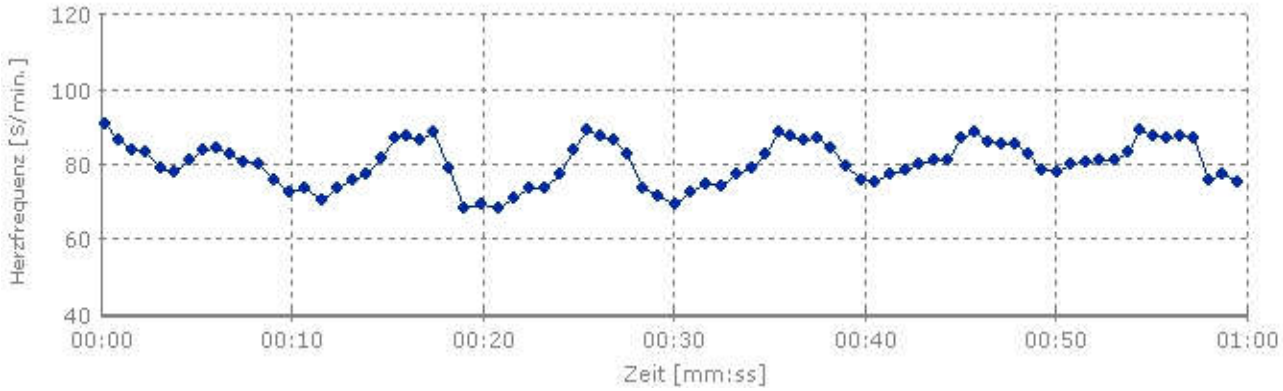
Regulation of the heart rate after 15 days using SPIRO Level 5



Measurement results after 15 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	17,36	bpm	52,80%

Regulation of the heart rate after 20 days using SPIRO Level 5



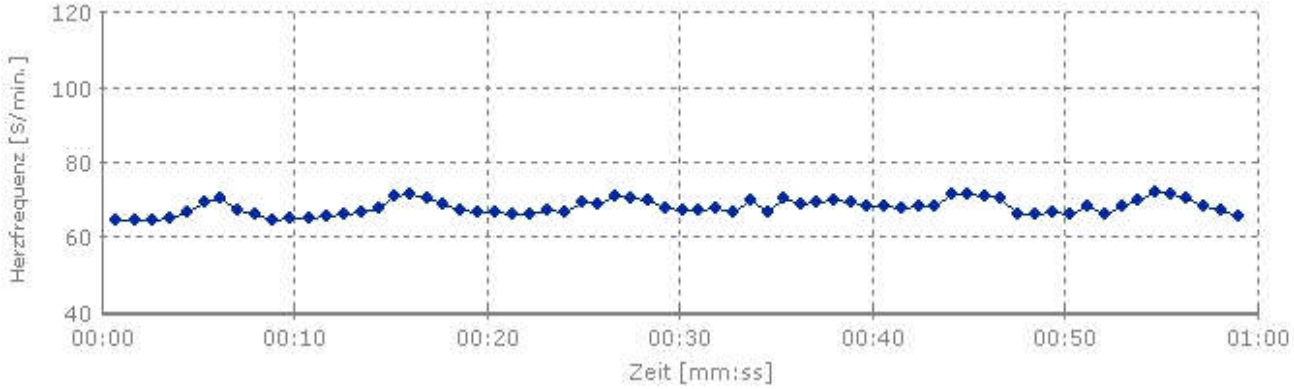
Measurement results after 20 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	19,56	bpm	59,21%

Evaluation of the test results: With this test subject, the use of a SPIRO Level 5 during the 20-day test phase led to an age group-related improvement in the variability of the heart rate from 38,71% to 59,21%. It is therefore possible to assume a significant reduction in the chronic stress caused by high-frequency electromagnetic radiation.

Test subject 9, female, very high-frequency radiation exposure due to multiple DECT cordless phones in the office of a freight forwarder. A SPIRO Level 5 was placed on the desk of the test subject in the workplace.

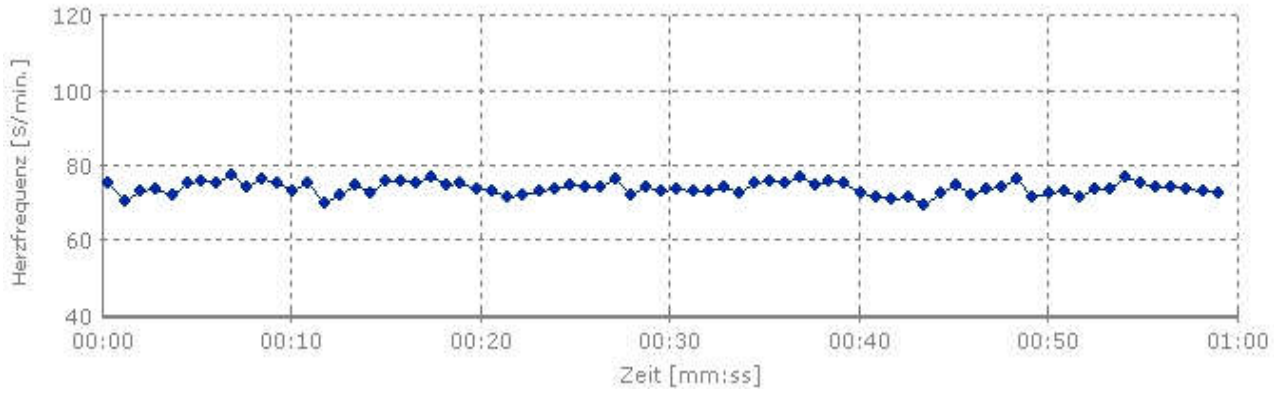
Regulation of the heart rate without SPIRO Level 5



Measurement results without SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	6,23	bpm	9,18%

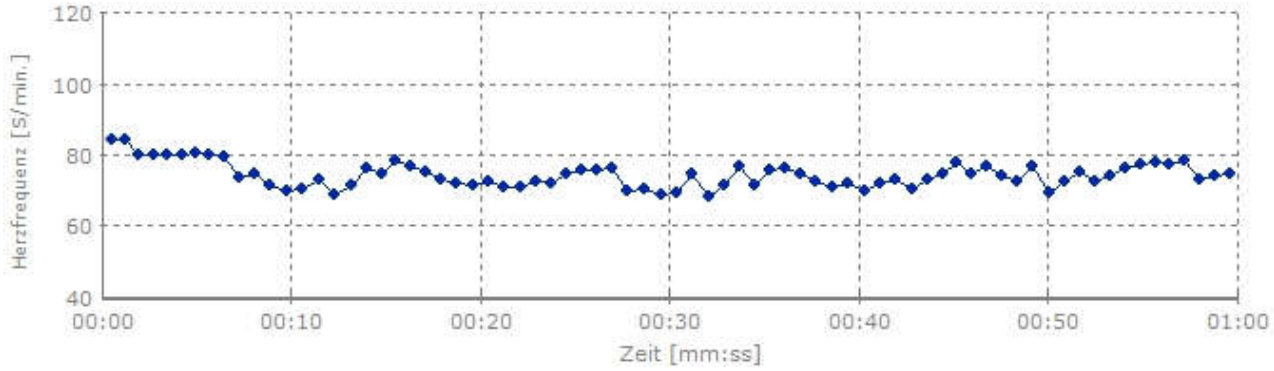
Regulation of the heart rate after 5 days using SPIRO Level 5



Measurement results after 5 days using SPIRO Level 5

Parameter	Value	Unit	Rang/Alter
Resp. sinus arrhythmia (RSA)	6,68	bpm	9,82%

Regulation of the heart rate after 23 days using SPIRO Level 5



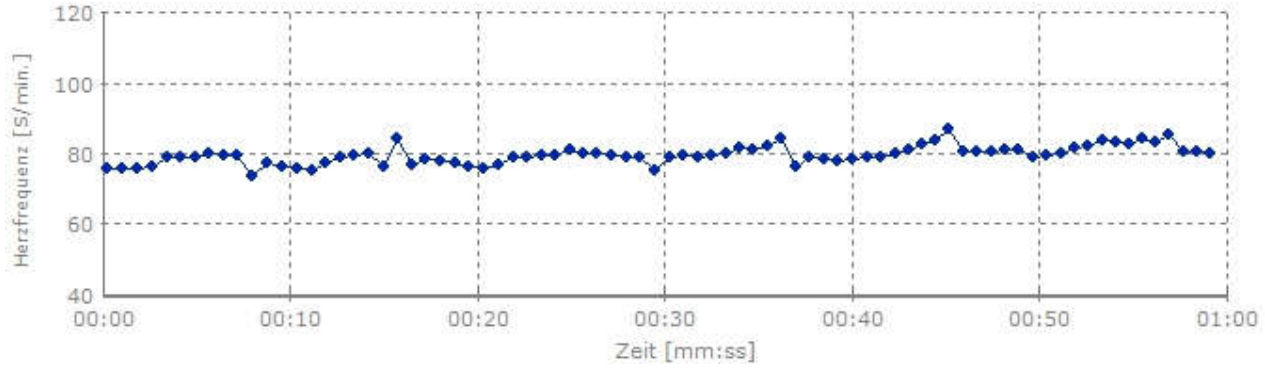
Measurement results after 23 days using SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	18,45	bpm	44,76%

Evaluation of the test results: With this test subject, the use of a SPIRO Level 5 during the 23-day test phase led to an age group-related improvement in the variability of the heart rate from 9,18% to 44,76%. It is therefore possible to assume a significant reduction in the chronic stress caused by high-frequency electromagnetic radiation.

Test subject 10, male, high-frequency radiation exposure in the apartment and in the workplace due to airport radar and mobile phone. A SPIRO Level 5 was placed in the bedroom, in close proximity to the bed, and a further unit was positioned in the workplace, adjacent to the desk.

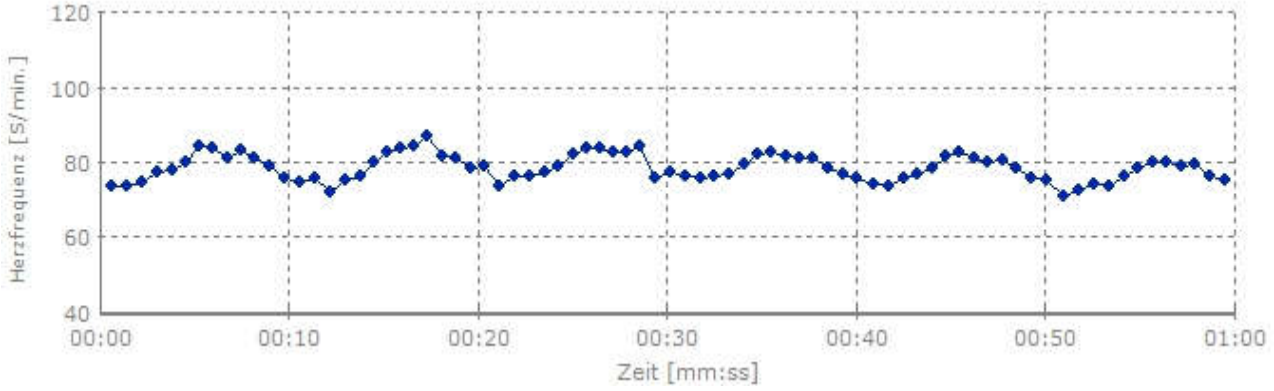
Regulation of the heart rate without SPIRO Level 5



Measurement results without SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	7,72	bpm	29,38%

Regulation of the heart rate after 8 days using SPIRO Level 5



Measurement results after 8 days using SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	10,12	bpm	34,64%

Regulation of the heart rate after 17 days using SPIRO Level 5

Measurement results after 17 days using SPIRO Level 5

Parameter	*Value*	*Unit*	*Rang/Alter*
Resp. sinus arrhythmia (RSA)	12,09	bpm	52,32%

Evaluation of the test results: With this test subject, the use of a SPIRO Level 5 during the 17-day test phase led to an age group-related improvement in the variability of the heart rate from 29,38% to 52,32%. It is therefore possible to assume a significant reduction in the chronic stress caused by high-frequency electromagnetic radiation.

The evaluation of the test results based on the measurements of the heart rate variability of 10 test subjects, aged between 10 and 75 years, revealed the following results:

In 3 of the 10 test subjects, the use of the SPIRO Level 5 ***clearly*** improved the ability to regulate the heart rate and adjust the vegetative nervous system to various exposure levels**.**

In 6 of the 10 test subjects, the use of the SPIRO Level 5 ***significantly*** improved the ability to regulate the heart rate and adjust the vegetative nervous system to various exposure levels**.** The measurement results were primarily confirmed through the descriptions of the test subjects of their subjective perception of the reactions of their bodies to the bioenergetic information field of the SPIRO Level 5.

In 1 of the 10 test subjects, the use of the SPIRO Level 5 was ***ineffective*** in terms of heart rate regulation. When the test subject was questioned, it became apparent that the individual was fitted with a pacemaker.

5. Award of the IGEF test seal to the SPIRO Level 5

The results of the biophysical investigation by the IGEF test and research laboratory confirm that the use of the SPIRO Level 5 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 Level 5 increases with the duration of use.

The SPIRO Level 5 is therefore suitable as a protective measure with electromagnetic radiation. However, use of the SPIRO Level 5 cannot replace medical treatment in the event of illness.

The requirements of the International Association for Electrosmog-Research IGEF Ltd for awarding the IGEF test seal are fulfilled.

The award of the IGEF test seal to the SPIRO Level 5 takes place on the basis of an agreement with the International Association for Electrosmog-Research IGEF Ltd 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
International Association for Electrosmog-Research IGEF Ltd
IGEF certification centre

Report generation date: 1th March 2016

6. Bibliography

Carney RM, Freedland KE, Stein PK, Skala JA, Hoffman P, Jaffe AS: Change in heart rate and heart rate variability during treatment for depression in patients with coronary heart disease. Psychosomatic Medicine 62: 639-647 (2000)

Dapra, David: Die Variabilität der Herzfrequenz. Eine Two-Case Studie über die Reproduzierbarkeit von Ergebnissen (2003)

Del Pozo JM; Gevirtz RN; Scher B; Guarneri E: Biofeedback treatment increases heart rate variability in patients with known coronary artery disease. American Heart Journal 147: G1-G6 (2004)

Deutsche Gesellschaft für Biofeedback (Internetseite) – www.dgbfb.de.

Divan HA, Kheifets L, Olsen J Scand: Prenatal cell phone use and developmental milestone delays among infants. J Work Environ Health (2011)

Eckberg DL, Hughes JW, Stoney CM: The human respiratory gate. Journal of Physiology (2003) 548: 339–352. Depressed mood is related to high-frequency heart rate variability during stressors. Psychosomatic Medicine 62: 796-803 (2000)

Farina M, Mariggio MA, Pietrangelo T, Stupak JJ, Morini A, Fano G: ELF-EMFS induced effects on cell lines: controlling ELF generation in laboratory. Progr Electromagn Res B : 131 - 153 (2010)

Gandhi, Om: Comparison of numerical and experimental methods for determination of SAR and radiation patterns of hand-held wireless telephones. Bioelectromagnetics, 20: 93-101 (1999)

Jiang W, Kuchibhatla M, Cuffe MS, Christopher EJ, Alexander JD, Clary GL, Blazing MA, Gaulden LH, Califf RM, Krishnan RR, O'Connor CM: Prognostic value of anxiety and depression in patients with chronic heart failure. Circulation 110: 3452-6 (2004)

Katsamanis Karavidas M, Lehrer PM, Vaschillo E, Vaschillo B, Marin H, Buyske S, Malinovsky I, Radvanski D, Hassett A: Preliminary Results of an Open Label Study of Heart Rate Variability Biofeedback for the Treatment of Major Depression Applied Psychophysiology and Biofeedback 32: 19-30 (2007)

Kesari KK, Kumar S, Behari J: Effects of Radiofrequency Electromagnetic Wave Exposure from Cellular Phones on the Reproductive Pattern in Male Wistar Rats. Appl Biochem Biotechnol (2011)

Koivisto, M., Revonsuo, A., Krause, C.M., Haarala, C., Sillanmaki, L, Laine, M. and Hamalainen, H.: Effects of 902 MHz electromagnetic field emitted by cellular telephones on response times in humans. Cognitive Neuroscience and Neuropsychology in NeuroReport Vol 11 No 2, February (2000)

Krittayaphong R, Cascio W, Light K, Sheffield D, Golden R, Finkel J, et al.: Heart rate variability in patients with coronary artery disease: Differences in patients with higher and lower depression scores. Psyhosomatic Medicine 59: 231–235 (1997)

Lai, H. and Singh, N.P.: Elektromagnetische Hochfrequenzwellen brechen einzel- und doppelsträngige DNA in den Gehirnzellen von Ratten. Int. J. Radiation Biology, 69 (4): 513-521 (1996)

Lehrer PM, Vaschillo E, Vaschillo B: Resonant frequency biofeedback training to increase cardiac variability: Rationale and manual for training. Applied Psychophysiology & Biofeedback, 25: 177–191 (2000)

Lehrer PM, Vaschillo E, Vaschillo B, Lu SE, Eckberg DL, Edelberg R, Shih WJ, Lin Y, Kuusela TA, Tahvanainen KUO, and Hamer RM: Heart Rate Variability Biofeedback Increases Baroreflex Gain and Peak Expiratory Flow. Psychosomatic Medicine 65: 796-805 (2003)

McCraty R: Heart Rhythm Coherence - An Emerging Area of Biofeedback. Biofeedback 30: 23-25 (2002)

Mild, K.H., Oftedal, G., Sandstrom, M., Wilen, J., Tynes, T., Haugsdal, B. and Hauger E.: Symptomatischer Vergleich von Anwendern analoger und digitaler mobiler Telefone - Eine Schwedisch-Norwegische epidemiologische Studie. National Institute for working life, 1998:23, Umea, Sweden, 84pp (1998)

Mück-Weymann M: Prozeß versus Handlung - Erklären der Atmung als Prozeß versus; Verstehen der Atmung als Handlung. Ein Beitrag zur Medizintheorie; In: M. Mück-Weymann (Hrsg.): Band 1, Reihe „Biopsychologie & Psychosomatik“. Verlag Hans Jacobs, Lage (1999)

Mück-Weymann M, Loew T, Hager D: Multiparametrisches Bio-Monitoring mit einem computerunterstützten System für psychophysiologische Diagnostik, psychophysiologisch gesteuerte Therapie und Biofeedback. Psycho 5: 378-384 (1996)

Mück-Weymann M, Mösler T, Joraschky P, Rebensburg M, Agelink M: Depression modulates autonomic cardiac control: A psychophysiological pathway linking depression and mortality. German J Psychiatry 5: 67-69 (2002)

Mück-Weymann M: Die Variabilität der Herzschlagfolge - Ein globaler Indikator für Adaptivität in bio-psycho-sozialen Funktionskreisen. Praxis Klinische Verhaltensmedizin und Rehabilitation (2002) 60: 324-330.

Mück-Weymann M, Janshoff G, Mück H: Standardized stretching-program increases heart rate variability in athletes complaining about limited muscular flexibility. Clinical Autonomic Research 14: 15-18. Forum Stressmedizin 2007 – I: 1-7 (2004)

Mück-Weymann M, Einsle F: Biofeedback. In: Köllner V, Broda M. (Hrsg.): Praktische Verhaltensmedizin. Thieme Verlag, Stuttgart 69-75 (2005)

Panagopoulos DJ, Margaritis LH: Biological and Health Effects of Mobile Telephone Radiations. Int J Med Biol Front: 33 - 76 (2009)

Rechlin T, Weis M, Spitzer A, Kaschka WP: Are affective disorders associated with alterations of heart rate variability? Journal of Affective Disorders 32: 271–275 (1994)

Sakurai T, Kiyokawa T, Narita E, Suzuki Y, Taki M, Miyakoshi J: Analysis of gene expression in a human-derived glial cell line exposed to 2.45 GHz continuous radiofrequency electromagnetic fields. J Radiat Res (Tokyo) (2011)

Saygin M, Caliskan S, Karahan N, Koyu A, Gumral N, Uguz AC: Testicular apoptosis and histopathological changes induced by a 2.45 GHz electromagnetic field. Toxicol Ind Health, (2011)

Schwartz S, Anderson E, van de Borne PMDP: Autonomic nervous system and sudden cardiac death. Experimental basis and clinical observations for post myocardial infarction risk stratification. Circulation 85: 177–191 (1992)

Siepmann M, Aikac V, Unterdörfer J, Petrowski K, Niepoth L, Mück-Weymann M: The effects of heart rate variability in patients with depression and in healthy controls. [http://www.bfe.org/meeting/12th/Scientific_Day_2008_in_Salzburg.pdf]

Stein PK, Carney RM, Freedland KE, Skala JA, Jaffe AS, Kleiger RE, Rottman JN: Severe depression is associated with markedly reduced heart rate variability in patients with stable coronary heart disease. J. Psychosomatic Research 48: 493-500 (2000)

Virnich, Martin H.: WLAN-Anwendungen für Hot-Spots”, http://www.elektrosmog-messen.de/wlan-technik.pdf (2003)