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Ref.: DE-KA-Titan, physical measurements
Your order from 13. March 2001

Dear Mrs. Festl,

We are pleased to inform you that all the planned measurements (a total of 380 series of measurements) of DE-KA-Titan have been completed with success. The evaluation of the measuring results can be found in our documentation (enclosure: 14 pages).

Our physical measurements of the electromagnetic and gravitational natural oscillations of the DE-KA-Titan in the frequency range up to 50 MHz prove that:

1. The DE-KA-Titan functions as a selective oscillation circuit with a natural oscillation of 6.0 MHz,
2. that the action potential of the firing axons (during pain) shifts this natural oscillation to the value 8.4 MHz,
3. that this frequency or phase shift alleviates pain, because the energy of the pain signal 8.4 MHz is absorbed by standing gravitation waves,
4. The pain alleviating function of the DE-KA-Titan has depth action up to a tissue depth of 15 – 20 cm.

Yours sincerely,

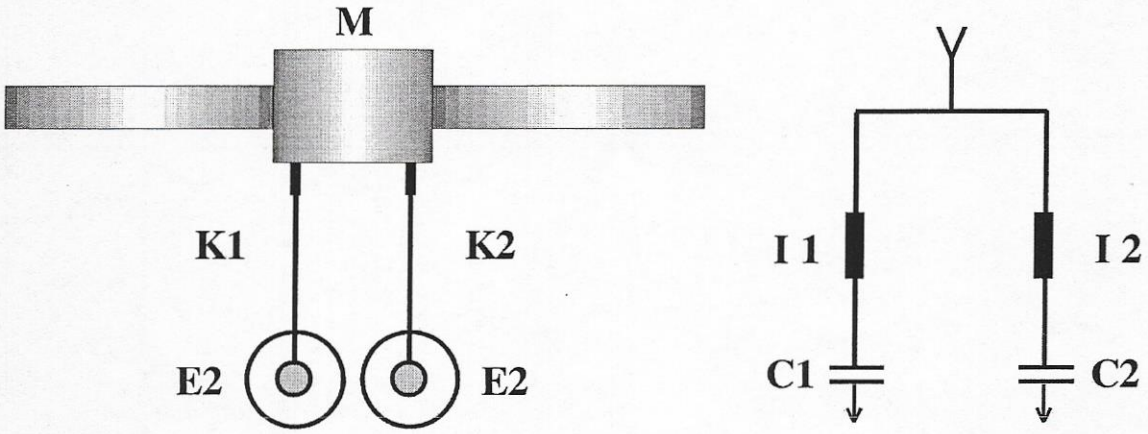
Dr.rer.nat. Hartmut Mueller
Leiter des IREF

Wolfratshausen, 17. April 2001

Measurement of physical fields on DE-KA-Titan

1. Basic electrotechnical structure of the DE-KA-Titan
2. Physical functional principle of the DE-KA-Titan
3. Electromagnetic spectrum
4. Gravitational spectrum
5. Interpretation

1. Basic electrotechnical structure of the DE-KA-Titan



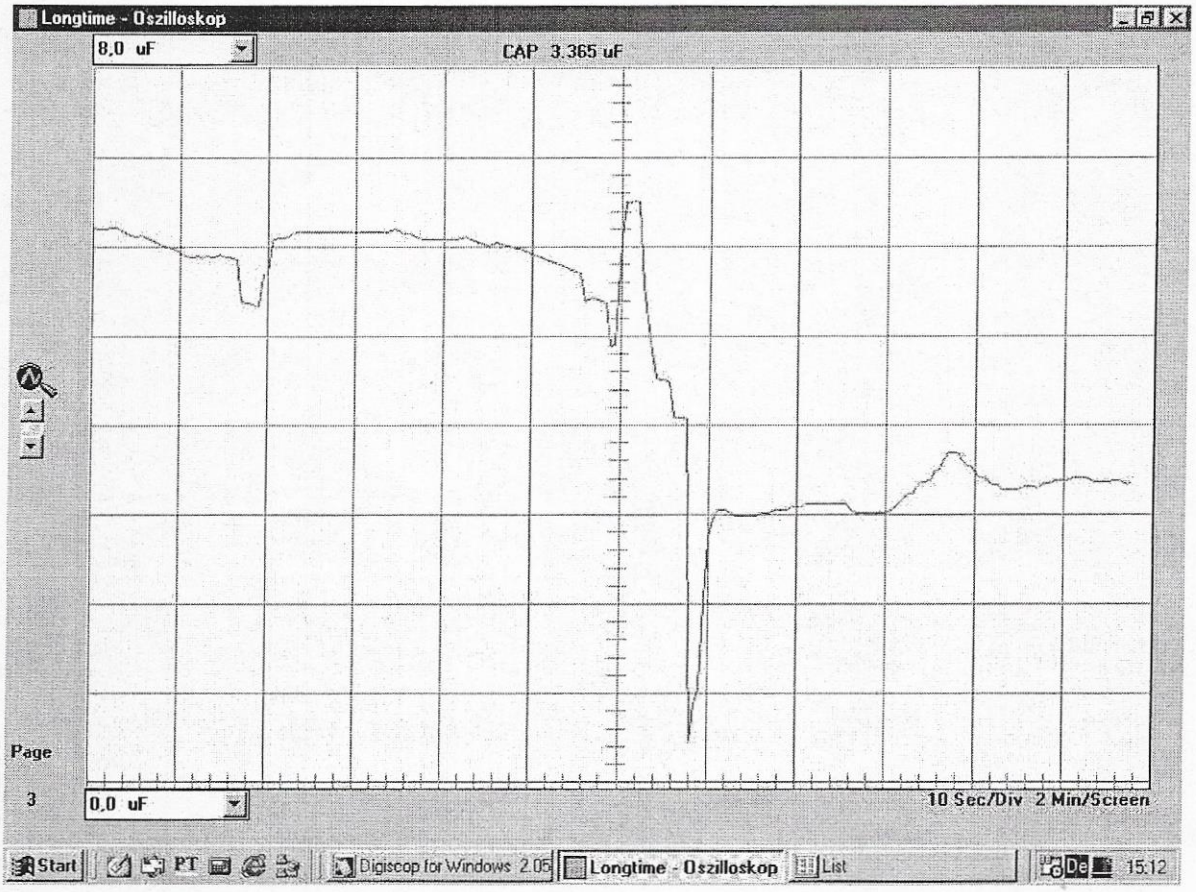
The metal wrist strap (M) of DE-KA-Titan ensures an optimal electrical skin contact. The wrist is capacitively coupled to other areas of the epidermis with the cables (K1 and K2) and the adhesive electrodes (E1 and E2). An oscillatory circuit is produced.

The adhesive electrode takes over the role of the capacitors C1 and C2 respectively, (each with a capacity of approximately 6.5 µF), the gel operates as an electrolyte. The connecting cable operates as inductance (I1 or I2 respectively). The action potential (approx. +30 mV) of the stimulated axons serves as a current source. When at rest, the nerve cell has a membrane potential of approx. –70 mV. If the threshold value of approx. –50mV is exceeded, the cell fires – the action potential increases to +30 mV. This is equivalent to a difference in potential of 30 mV + 70 mV = 100 mV.

The natural oscillations spectrum of the IC oscillatory circuit largely depends on the skin resistance of the patient and the excitation condition of his nerve cells. This leads to the presumption that the spectrum of DE-KA-Titan adapts itself to the individual pain characteristic of the patient.

2. Physical functional principle of the DE-KA-Titan

The capacities C1 and C2 of the adhesive electrodes E1 and E2 containing gel mostly change according to the skin resistance of the patient, the action potential of the axons, and also (marginally) to the fluctuations of external electromagnetic fields, e.g. the earth's magnetic field. Our long-time oscilloscope measurement showed that the capacities C1 or C2 fluctuate in the range of 6 µF to 3 µF, and that fluctuation values of 7.5 µF to 0.5 µF are possible:



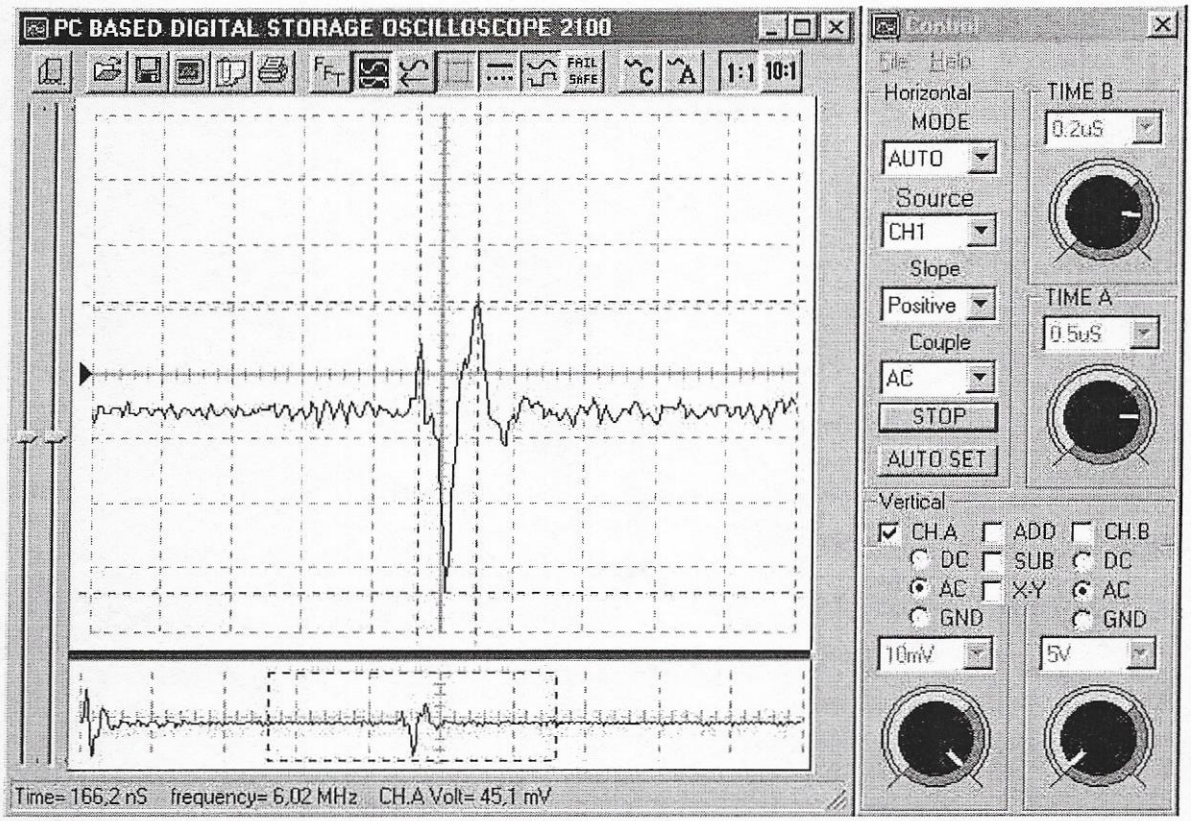
The long-time oscillogram (above) shows the reaction of C1 to a painful skin stimulation (pinprick). These capacity changes, caused for the most part by the pain, lead to phase shifts in the spectrum of the natural oscillations of DE-KA-Titan, which result in a partial smoothing of the voltage peaks of the action potentials, thus alleviating the pain. The worst the pain, the bigger the amplitude of the dephased signal and the resulting smoothing effect.

3. Electromagnetic spectrum

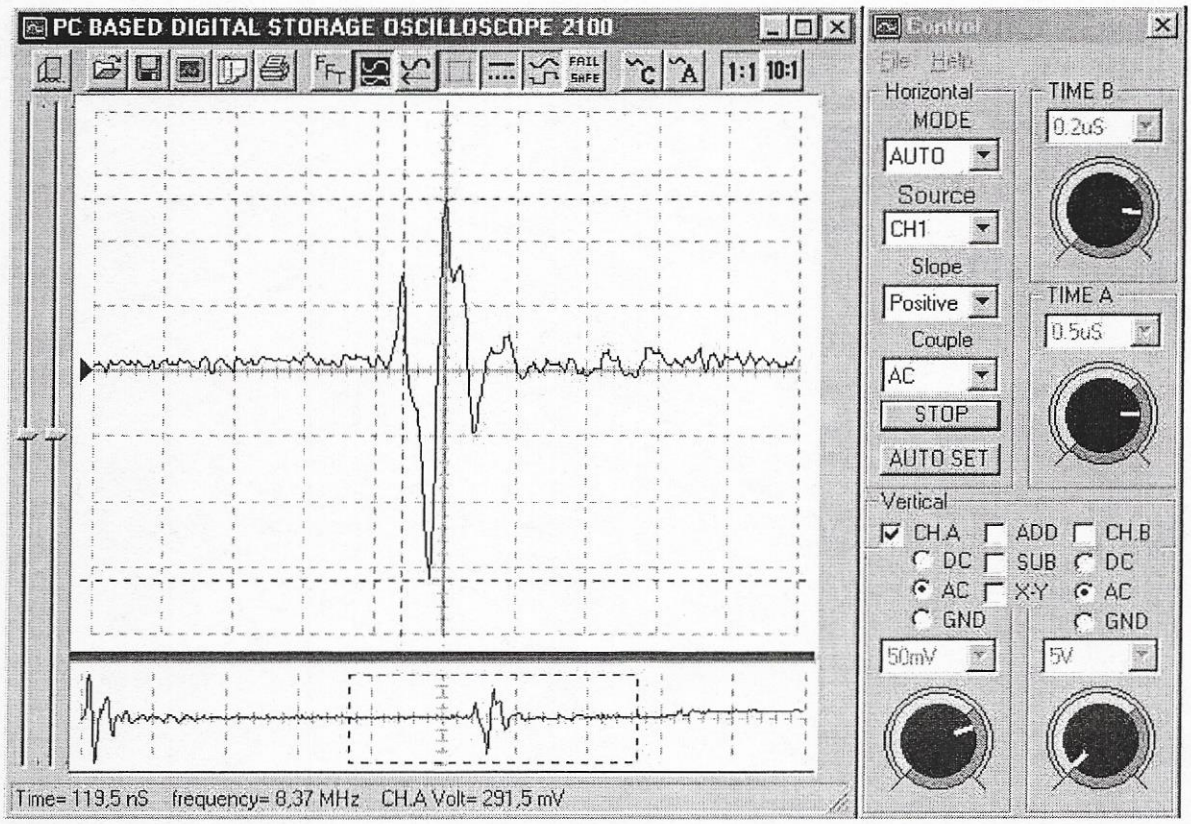
The spectrum of the electromagnetic natural oscillations of DE-KA-Titan was measured in the frequency range from 0 Hz to 50 MHz (**see graphs 1 – 19**). These measurements were repeated 20 times in each of all the 19 frequency ranges and always compared with reference measurements without skin contact.

In the range up to 250 kHz, the system shows natural oscillations with resonance peaks at 27 kHz, 47 kHz, 67 kHz, 87 kHz, 107 kHz, 127 kHz, 147 kHz etc. in intervals of 20 kHz (**graph 12**). It the range up to 500 kHz, the fundamental tones are superimposed by harmonic oscillations in the next octave with resonance peaks at 54 kHz, 94 kHz, 134 kHz, 174 kHz, 214 kHz etc. (**graph 13**). Additional harmonic oscillations are evident in higher octaves up to 25 MHz (**graphs 14, 15, 16, 17, 18**).

However, the decisive factor for the pain-relieving effect of the DE-KA-Titan is the resonance peak at 6.0 MHz:

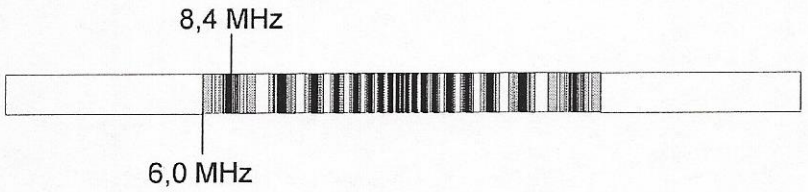


The resonance peak at 6.0 MHz is pushed up to the value of 8.4 MHz by the action potential of the firing axon (see also two maxima in **graph 19**). This frequency change is physically identical to a phase shift:



4. Gravitational spectrum

The resonance peak of DE-KA-Titan at 6.0 MHz corresponds to a limit value of the global gravitational spectrum. The action potential of the axon shifts this resonance peak into a nodal point (8.4 MHz) of a standing gravitation wave and diverts the excess energy of the pain signal into the global gravitation field:



5. Interpretation

Both the electromagnetic spectrum and the gravitational spectrum of DE-KA-Titan's natural oscillations are in the supersonic range, which is no longer audible for the human ear, but is used by bats, for example, for orientation. Animals can produce sounds with a frequency ranging from approx. 40 kHz up to approx. 90 kHz. Certain insects produce ultrasound up to 250 kHz both for orientation purposes and for **stunning** their prey or opponents.

Ultrasound with a frequency of 2 MHz to 20 MHz is used in medical diagnosis. The lower the frequency, the further the ultrasound penetrates the tissue, but the spatial resolution diminishes with decreasing frequency. An ultrasonic head, which is placed externally on the surface of the skin, operates with frequencies from 5 MHz to 13 MHz. Depth of penetration and resolution make a good compromise.

The following tests can be carried out with these ultrasonic heads:

- chest, soft parts of neck, thyroid gland, extremities and the abdominal wall with frequencies of 5 MHz to 13 MHz.
- abdomen with kidneys, pancreas, bladder, spleen, liver, abdominal vessels, and for prenatal tests, uterus etc. Here frequencies ranging from 2 MHz to 6 MHz are used and for children a frequency of **6 MHz is used, with a penetration depth of approx. 15 cm – 20 cm**.

Apart from tests on the skin surface, ultrasonic heads are also used for the following:

- for intra-abdominal tests, such as tests with an ultrasonic head inserted into the vagina or rectum to examine ovaries, the uterus, fallopian tubes, and the prostate. The frequencies used here lie between **6 MHz and 8 MHz**.
- for intra-luminal tests with the insertion of an ultrasonic head into the blood vessels. Duplex-sonography is applied to vessels in the neck, legs, abdomen and pelvis and to intra cranial vessels, using frequencies between **6 and 8 MHz**.

The above contexts lead to the assumption that the DE-KA-Titan achieves an optimum **depth action** on account of its electromagnetic and gravitational resonance peak at **6.0 MHz or 8.4 MHz**, and that it is able to alleviate not only superficial pain, but also deeper-lying pain (headache, toothache, pain in joints and muscles etc.).