

Scientific Research Report
on the subject of: **Cell radio telephones' electromagnetic radiation influence on biological objects and the estimation of AIRES neutralizer of electromagnetic anomalies use efficiency.**

Part II. Structure of magnetic field of cell telephones' electromagnetic radiation in different operation modes and depending on technological peculiarities of AIRES foundation's neutralizers.

Structure of magnetic field of cell telephones' electromagnetic radiation in different operation modes and depending on AIREs neutralizer's presence or absence.

Additional tests with different types of GSM 900/1800 MHz cell phones, conducted in March – April 2003, made it possible to give a more detailed definition of electromagnetic field changes in the presence of AIREs neutralizers.

The research was conducted with the help of the equipment, belonging to St.-Petersburg State Polytechnic University Educational –Scientific Center “Electrophysics of Natural Ecosystems” laboratory (block diagram – Fig.1)

Equipment

The measurements were performed with the use of:

- magnetic induction converter PMI Neva-5

<u>PMI Neva-5 specifications</u>		
1. Measurement limits of magnetic field induction, mc tesla		1,10,100
2. Conversion ratio of each measurement limit, V/mc tesla		5; 0,5; 0,005
3. Reduced error of conversion ratio of each limit, no more than %		±5
4. The converter provides automatic compensation of a constant magnetic field induction in the band of , mc tesla		±60
5. Power supply of the converter is conducted from an external source with dc voltage, not less than, V		9
6. The converter has an output for connection to the indicating instrument, computer or other recording device.		
7. The converter is supplied with an indicator, which is situated in the center of a setting coordinator made as a cube, with a 1 m length cable.		
8. Overall dimensions, mm		
indicator	50x24	
setting cube	60x60x60	
control panel	150x80x50	

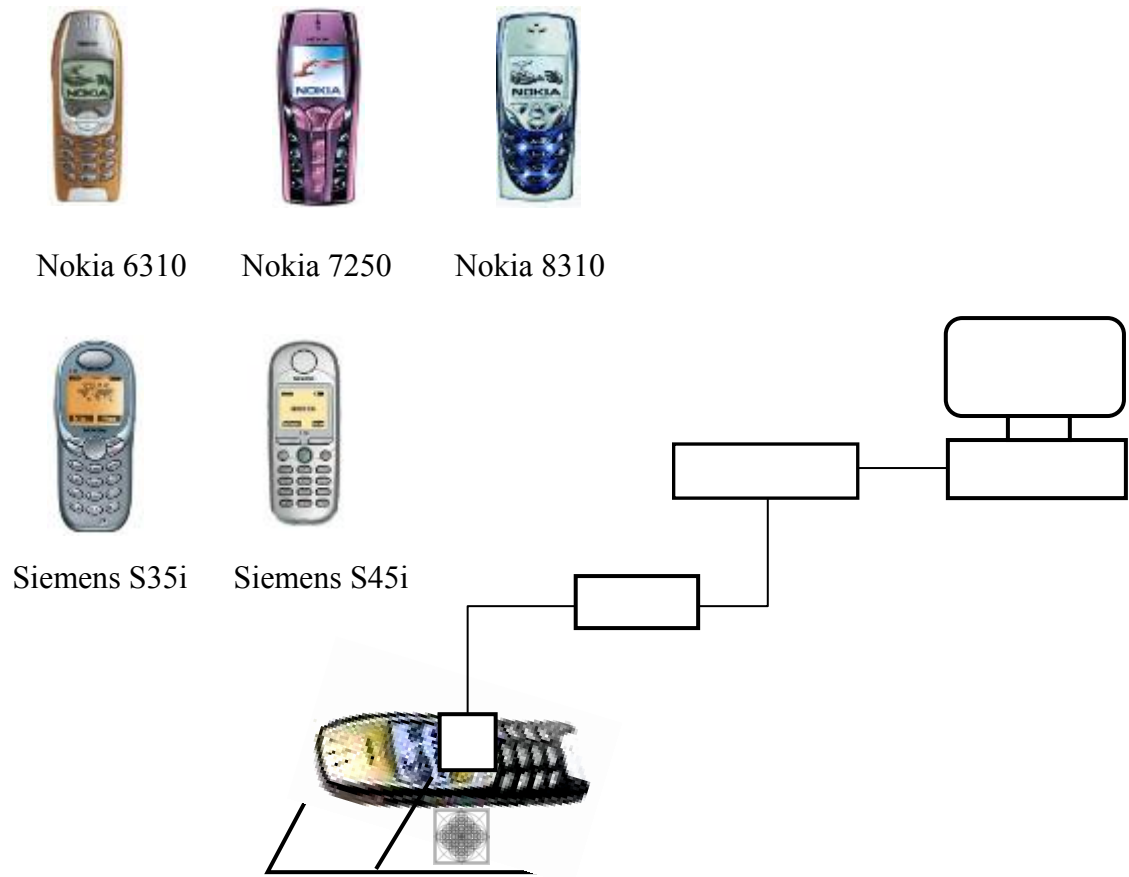
Magnetic induction converter PMI Neva-5 controlled a variable magnetic field (MF) close to a telephone set (TS) radiation source during the tests. Induction detector B_Z was placed on the telephone set and connected to PC through ADC (block-diagram, fig. 1).

Intel Pentium 150 MHz, 25 MB, HDD – 1,5 GB

Intel Celeron 433 MHz, 128 MB, HDD – 4 GB, CDRW 40

Cell telephone sets, used in the test – *Nokia 6310, Nokia 7250, Nokia 8310, Siemens S35i, Siemens S45i.*

AIREs electromagnetic anomalies neutralizer.



*Fig. 1 Diagram of arrangement for the research of cell phones electromagnetic radiation:
 PMI - magnetic induction converter Neva-5 with an indicator (1)
 ADC – analog-digital-converter*

When TS operates, EMF spectral structure next to the device changes. That is why, in this work the recording of magnetic field oscillations (ΔB_z) was performed in three modes:

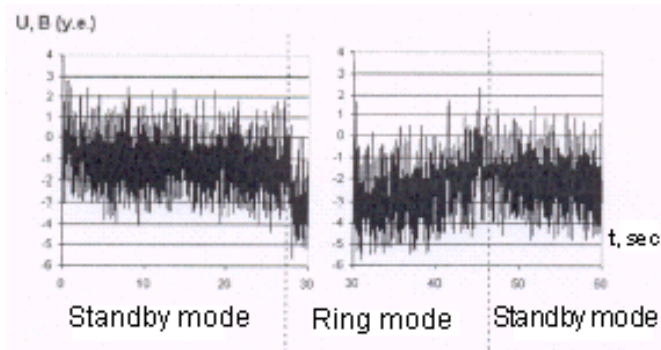
- Standby mode
- Ring mode
- Conversation mode

Converter PMI Neva-5 was set on the upper part of TS, the tested neutralizer was placed under TS, the recording of oscillations and further processing of ΔB_z was made on the computer.

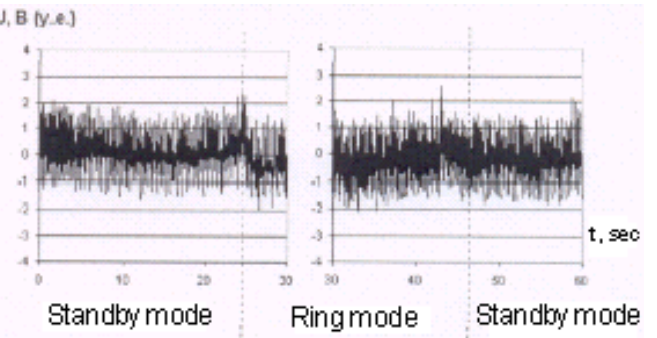
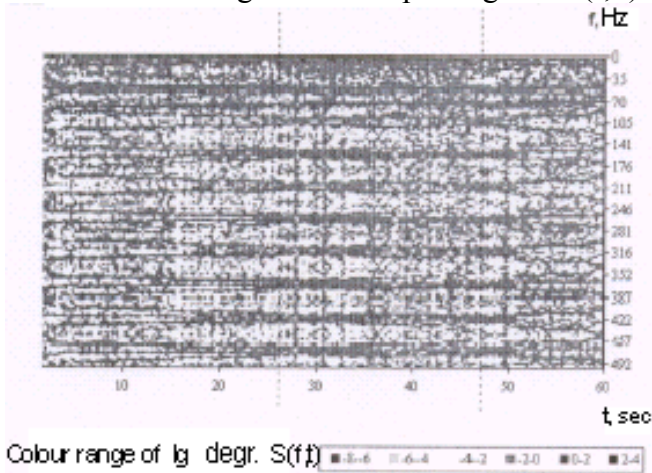
Further the most typical spectrograms of cell phones' magnetic field are given in real time, where one can clearly see the difference of the field amplitude and phase with and without AIREs neutralizer of electromagnetic anomalies (Fig. 2-5).

1. Real time magnetic field fluctuation U (t)

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2. Real time magnetic field spectrogram $S(f, t)$



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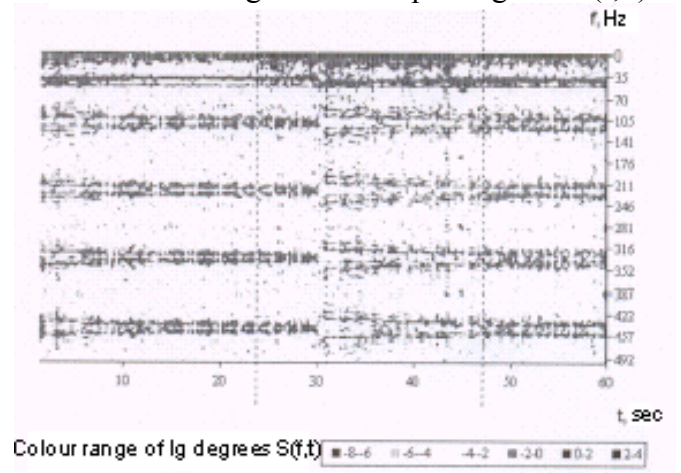


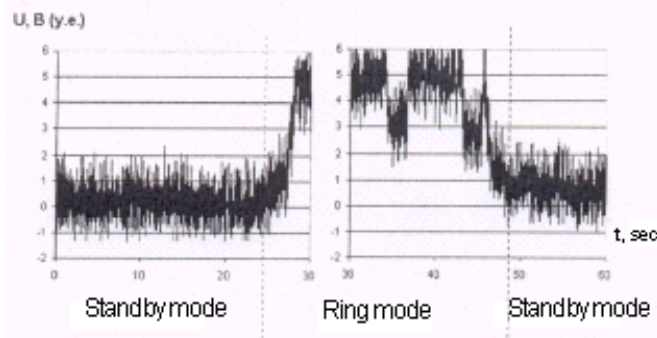
Fig. 2 Structure of cell phone's combined magnetic field in different operation modes:

Fig. 3 Structure of cell phone's combined magnetic field in different operation modes:

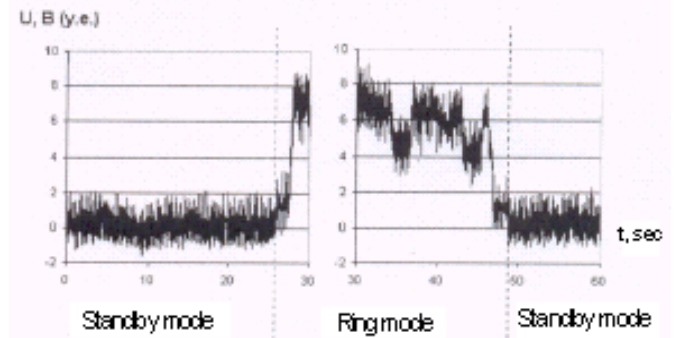
Date and Time	Telephone Type	Neutralizer Type	Test
20.03.2003 17:18	Nokia 7250	Without a neutralizer	2

Date and Time	Telephone Type	Neutralizer Type	Test
20.03.2003 17:29	Nokia 7250	AIRES neutralizer	2

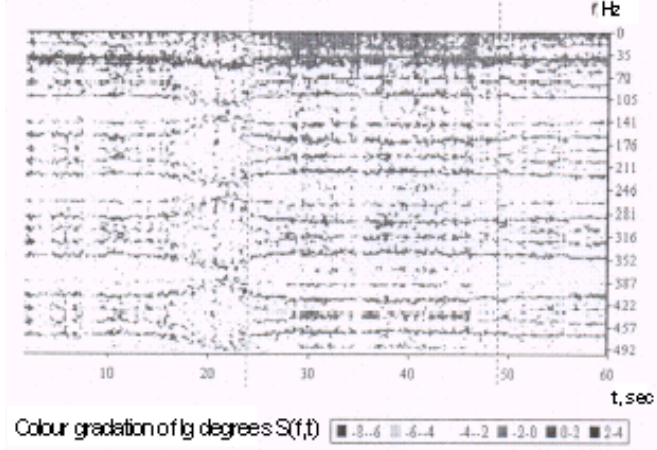
1. Real time magnetic field fluctuation $U(t)$



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2. Real time magnetic field spectrogram $S(f, t)$



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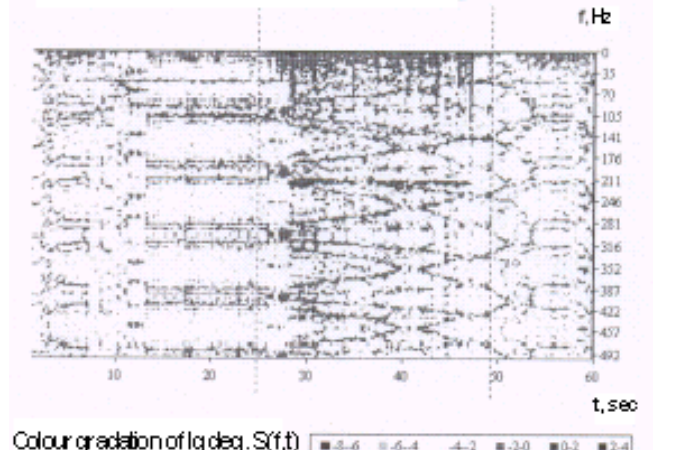


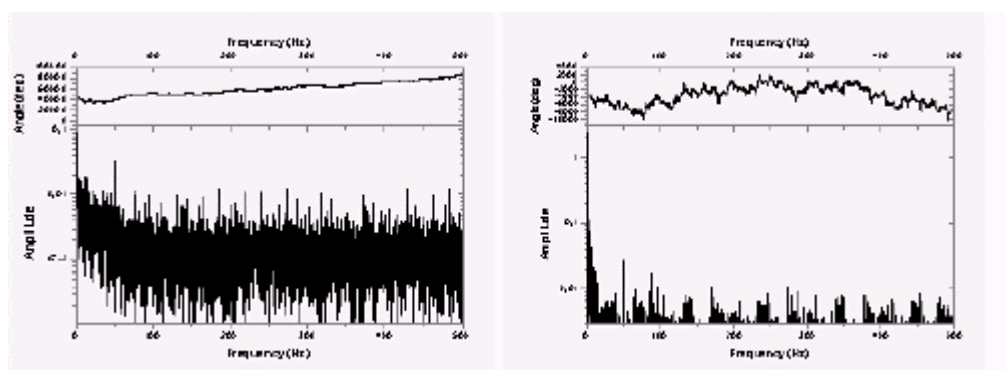
Fig. 4 Structure of cell phone's combined magnetic field in different operation modes:

Date and Time	Telephone Type	Neutralizer Type	Test
20.03.2003 17:52	Nokia 8310	Without a neutralizer	1

Fig. 5 Structure of cell phone's combined magnetic field in different operation modes:

Date and Time	Telephone Type	Neutralizer Type	Test
20.03.2003 18:11	Nokia 8310	AIRES neutralizer	1

TS Nokia 7250 in waiting mode (on the left) and ring mode (on the right)
without a neutralizer



TS Nokia 7250 in waiting mode (on the left) and ring mode (on the right)
with AIRES neutralizer

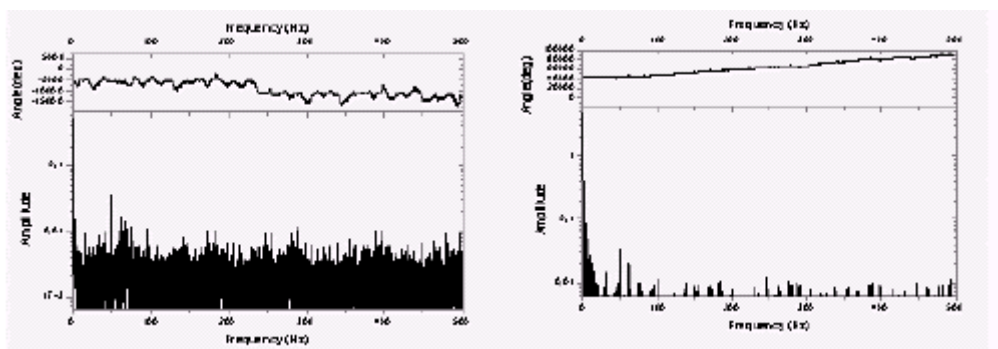


Fig. 6 Representative phase-frequency and gain-frequency spectra from the data bank of TS's main operating modes

According to the results of the experiment it was revealed that in case of the phone use without a neutralizer, telephone sets (TS) are characterized by similarity in a standby mode but they are considerably different in a ring mode. In case of the use of a telephone with the neutralizer, the bands are identical, both in a standby mode and in a conversation mode. At that, the neutralizer provides a more smooth power fall $S(f)$ with a first deep minimum in the area of 35 Hz and also considerably decreases radiation power in the area of 50 Hz (Fig. 6)

Since infralow frequency components' vibrations of a geomagnetic field within about 0,01 – 10 Hz have a high bioactivity (thus, magnetic disturbances cause central nervous system's crises, hypertension strokes, etc.), so upon the resonance effect arising (as a result of electromagnetic radiation additional influence) central nervous system's pathologic effects can be intensified. That is why, recorded fluctuations of a natural field in an indirect way reveal resonance frequency windows, which characterizes an electromagnetic radiation source as a biological (ecological) factor. In this regard, it is interesting to notice that in the low-frequency area there is an expressed effect of "AIRES" neutralizer of electromagnetic anomalies modulation of a natural field, changed by the electromagnetic radiation of cell TS.