

# Health and EMF Exposure: Protocol for Diagnostics and Therapy

**Dr Oleg GRIGORIEV**

# The Author

Oleg Grigoriev, PhD (radiobiology and hygiene)

— [ Center for Electromagnetic Safety, Director

— [ Federal Medical Biophysical Centre, Head of Lab  
"Radiobiology and Hygiene for Non-Ionizing Radiation"

— [ Russian National Committee on Non-Ionizing Radiation  
Protection, Vice-Chairman

# The Organizations

- [ Center for Electromagnetic Safety - non-governmental independent expertise of EMF safety for general public and occupational places.
- [ Federal Medical Biophysical Centre - governmental organization, which submits to Ministry of Health of Russia. The Laboratory of Radiobiology and Hygiene for Non-ionizing Radiations is the basic state laboratory on researches in area of EMF & health.

# The Protocol of diagnostics of health at exposition of EMF

- [ The purpose of the Protocol is to provide an opportunity of objective revealing of connection between a state of health of the person and the exposition of the electromagnetic field.
- [ Result of inspection of the person according to the Protocol is the basis for a choice of a way of therapy.
- [ This Protocol is not for scientific researches - this Protocol is for clinical diagnostics and therapy.

# The Protocol of diagnostics of health at exposition of EMF

- [ The Protocol is developed in 2008-2009
- [ There have been used results of own researches during 1975-2009, and also results of the researches published in the Russian scientific literature during the period with 1965 for 2009

# The Protocol of diagnostics of health at exposition of EMF - the task

- [ Inspection, which is made according to the Protocol, should allow objective establishing of connections between a state of health of the person and an exposition of electromagnetic field.
- [ The Protocol takes into account conditions of exposure of EMF, individual sensitivity of the person, results of clinical inspection, including results of neurologic inspection.
- [ The conclusion about connection of EMF exposure and a state of health of the person is made on the basis of a complex of all of data received as a result of inspection.

# The Protocol of diagnostics of health at exposition of EMF- groups of persons

Results of inspection according to the Protocol allow to distinguish three groups of persons:

- 1) people having changes in a state of health after the EMF exposure,
- 2) people possessing individual high sensitivity to EMF,
- 3) people with the neuroses provoked by contacts to EMF sources ("EMF neurosis").

# The Protocol of diagnostics of health at exposition of EMF - the basis

By development of the Protocol the following general postulates have been used:

- [ Scope (subjects) of the Protocol - any persons connecting the complaints to a state of health with EMF exposure;
- [ There is no specific disease caused by EMF, however there are complexes of symptoms and there are classified clinical displays which can be expected at chronic EMF exposure;



# The Protocol of diagnostics of health at exposition of EMF - the basis

- [ The Protocol can be realized only at presence of the conditions of an exposure given about conditions at the moment of occurrence of complaints and the conditions previous to occurrence of changes in a state of health;
- [ Individual radiosensitivity should be taken into account at studying a state of health and be separated from psycho-somatic displays;
- [ At persons with high radiosensitivity and taking place in conditions of EMF exposure, typical for the general population, changes in a state of health, expected for people with normal radiosensitivity conditions of professional irradiation EMF are probable.

# Conditions of application of the Protocol

- [ The Protocol is intended to be applied to people, showing complaints to a state of health in connection with contacts to EMF sources in occupational and general EMF conditions
- [ The Protocol is not distributed to children and teenagers.
- [ The Protocol is applied to the following conditions of an irradiation: chronic influence, not thermal intensity of EMF.

***Conditions of short-term contact to EMF source can be considered also at presence of the expressed clinical reactions.***

# Structure of the Protocol

1. The general examination, anamnesis (history), inspections of the therapist and neuropathologist.
2. Definition of individual sensitivity to EMF of a various frequency range:
  - 2.1 On a method of EMF testing;
  - 2.2 On a method of the analysis electroencephalography (the characteristic of an alpha-range in parieto-occipital areas of a head).

# Structure of the Protocol

3. The analyses of conditions of EMF exposure during the period previous to occurrence of health complaints (carrying out of measurements of EMF in a place of residing or work, the retrospective analysis of an exposition).
4. Clinical inspection.
5. The conclusion on results of inspection is developed on the basis of the polyparametrical analysis of the results received in points 1 - 4.

# Clinical inspection

- [ electroencephalography;
- [ electrocardiography, measurement of arterial pressure;
- [ clinical and biochemical analysis of blood;
- [ psycho-physiological tests;
- [ ultrasonic research of a thyroid gland and adrenal glands.

Additional researches are determined - on concrete personal complaints.

# Determination of individual sensitivity to EMF. General provisions

- [ Sensitivity of the persons to EMF exposition of low intensity (not thermal) is determined by their specific features (Kholodov, 1975; Lukyanova 1998, 2003; Lebedeva 1996; Kotrovskaya 1994, 1996, etc.)
- [ Definition of individual EMF sensitivity is a difficult problem, because individual reactions on EMF are polyparametrical (depends on frequency, intensity, localization, an exposition, etc.)
- [ At least two methods should be used for definition of individual radiosensitivity.

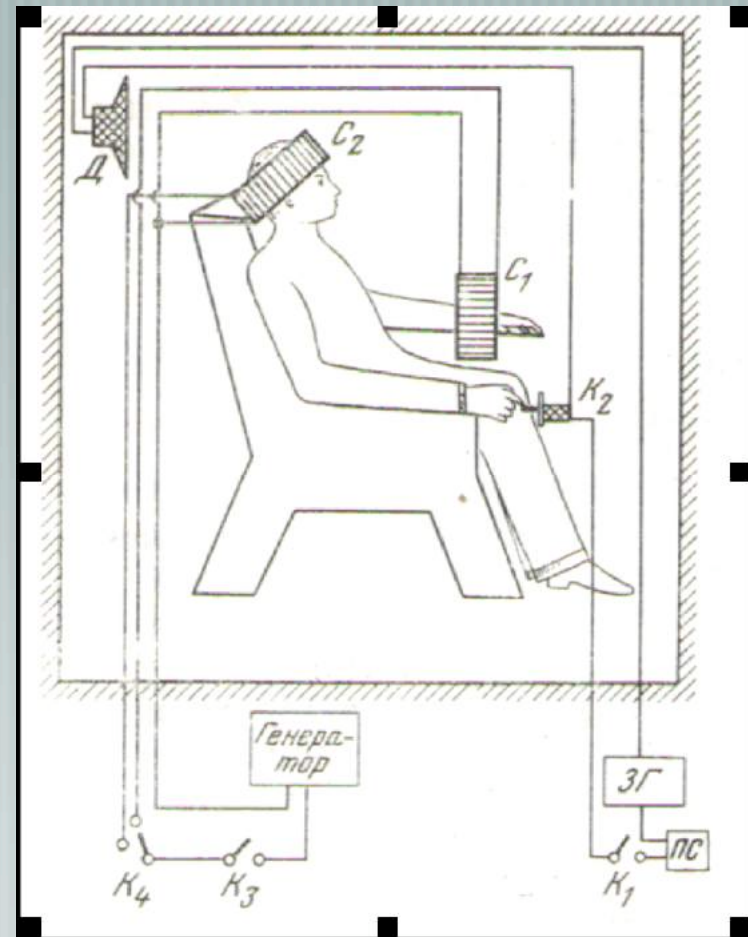
# Determination of individual sensitivity to EMF. The EMF test.

- [ The method is based on touch indication at EMF influence on the person. The latent period of reaction is supervised.
- [ For each examinee three kinds EMF are used - a magnetic field of power frequency (50 Hz), modulated radio-frequency EMF and not modulated EMF of a radio-frequency range ;
- [ Intensity EMF is equal to EMF limits for the general population.

# Determination of individual sensitivity to EMF. The EMF test.

The method is developed by professor Holodov in 1975-1985, the first time was modified by professor Lebedeva in 1994.

Second time it is specially adapted and modified for tasks of this Protocol in my Lab.



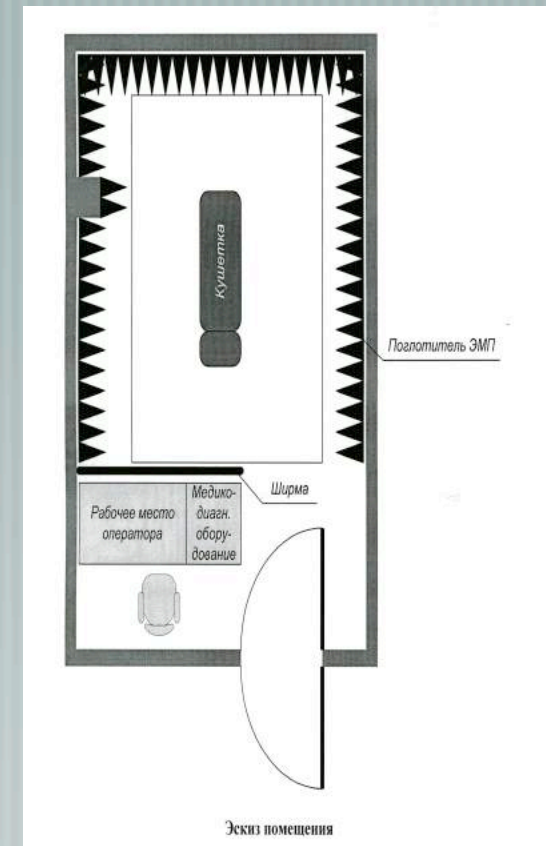


# Determination of individual sensitivity to EMF. Electroencephalogram.

— [ There is a dependence between individual radiosensitivity and capacity and spatial distribution of an alpha - rhythm of brain

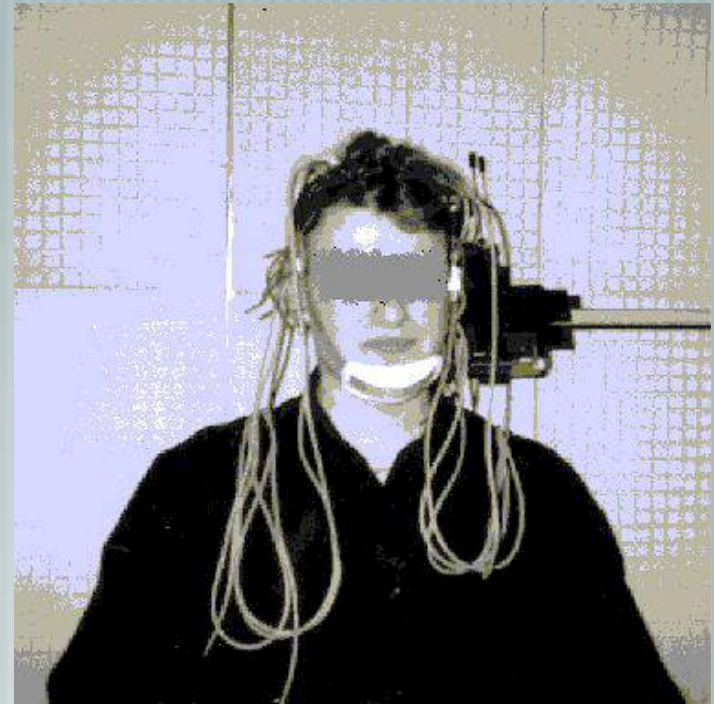
— [ People with the increased (high) sensitivity to EMF exposition have authentically big expressiveness of an alpha - rhythm parietal-occipital areas of a head

— [ Criteria for an estimation of sensitivity when using EEG is the individual characteristic of reactivity of Central Nervous System, presence of generalization slow activity of EEG.



# Determination of individual sensitivity to EMF. Electroencephalogram.

The method is based on experimental data:  
Lebedeva and Kotrovskaya - EMF tests researches 1994, 1996;  
Lukyanova, Grigoriev Yuri & Oleg, etc. - researches of bioreaction on EMF of mobile phone, 1998, 2003)



# Determination of individual sensitivity to EMF. Criterias for hypersensitivity

- [ The person really is in EMF exposition during complaints previous occurrence, however intensity does not exceed safety limit;
- [ The person has the positive conclusion on two methods of testing for the increased individual sensitivity;
- [ Changes of health are fixed by clinical methods;
- [ Reactions are authentically separated from psycho-somatic displays.

# The basic clinical hypothesis for hypersensitive

- [ At the person with high individual EMF sensitivity at chronic EMF exposure changes in a state of health, characteristic (expected) for people having contact to sources EMF in occupational conditions are possible.
- [ This is Asthenic or Asthenic-vegetative syndrome or Hypothalamuses syndrome ( see more “Radiowave Illness” - Sadchikova and Glotova, 1973; Zhadova, 1984; the Order of Ministry of Health №90, 1996-2004)

# Therapy

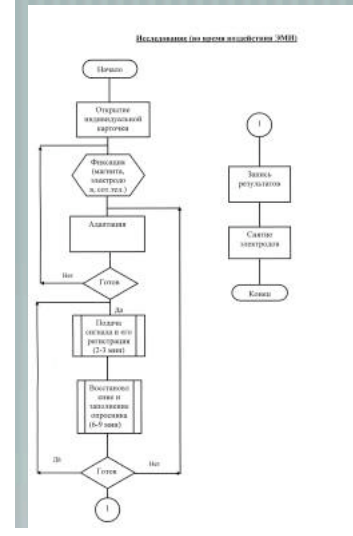
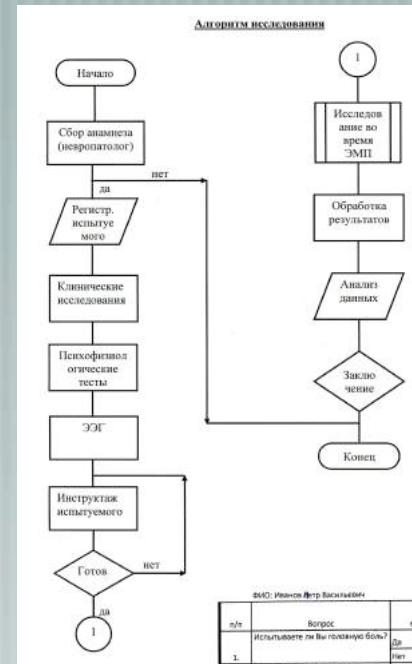
- [ The Protocol includes a set of typical recommendations on clinical regenerative treatment, preventive maintenance and protection against EMF influence.
- [ Symptomatic therapy – in dependence on the revealed concrete symptoms.
- [ Necessarily individual selection of medical preparations and dozes.
- [ Specificity: necessity of " electromagnetic unloading " - a presence in conditions of isolation from anthropogenous EMF during treatment, an additional rate directed to the general strengthening of an organism.

# Therapy

Duration of treatment:

Asthenic syndrome not less than 3 weeks

Asthenic-vegetative and Hypothalamuses syndrome 3-6 weeks



ФАО: Ивашев Петр Васильевич

п/п	Вопрос	варианты ответов	варианты ответов			
			1	2	3	4
1.	Используете ли Вы головную боль?	Да Нет				
2.	Характер головной боли	пульсирующая ноющая				
3.	Локализация головной боли	люб. височ. теменная область затылочная область				
4.	Используете ли Вы головокружение?	Да Нет				
5.	Ощущаете ли Вы дискомфорт в области сердца?	Да Нет				
6.	Появилось ли у Вас ощущение "мурашек" или зуда по коже?	Да Нет				
7.	Становилось ли вам жарко/холодно?	Да Нет				
8.	Появилось ли какое-либо зрели (мужонение, щелканье, свист и т.д.) во время воздействия?	Да Нет				
9.	Появилось ли ощущение онемелости?	Да Нет				
10.	Появилось ли у Вас щелочная привкус во рту?	Да Нет				
11.	Появилось ли у Вас ощущение закладывания носа?	Да Нет				
12.	Возникает ли у Вас изменение и притупление восприятия (повышение температуры, снижение слуха)?	Да Нет				

Примечание:

# The current condition of the Protocol

- [ The basic stages of the Protocol are experimentally approved
- [ We have a great experience 30 years of clinical diagnostics and therapy for “occupational” non-ionizing radiation patients, dosimetry etc,... we are looking for high-sensitivity persons among volunteers in experimental researches.... but we haven’t a lot of high-sensitivity persons who have complaints...
- [ Now the Protocol has the status of the draft of the Standard of Federal Medical Biophysical Centre of Russian Federation.

# General conclusion

1. we have carried the method of determination of a connection between EMF and health from occupational health medicine area into area of general medicine;
2. for the first time we have brought in the procedure of determination of individual EMF sensitivity as an obligatory stage of diagnostic;
3. we have improved method of determination of individual EMF sensitivity and used several criteria to confirm the result of testing;
4. suggested criterion for prognosis of health of people with high EMF sensitivity in modern conditions;
5. separated people with high EMF sensitivity from people with "EM neurosis";
6. stated a standard procedure on basis of algorithm and formal rules.



# In perspective

- [ September 2009 - December, 2010: general reconstruction of laboratories - first great renovation from 1948
- [ In 2010 we are planing to work through of some sections of the Protocol and making new laboratories. And we sure to get in this year the official confirmation of the Protocol as standard of Federal Medical Biophysical Centre of Russian Federation.
- [ 2011 - having more experience, working with persons, modification in the Protocol
- [ 2012 - statement of the Protocol by the Ministry of Health as the Standard

# The Team



— [ professor Feliks Torubarov : clinic, neurology, therapy...

— [ professor Svetlana Lukjanova : individual sensitivity, EEG

— [ doctor Irina Barannik : individual sensitivity, EMF test, clinic...

— [ doctor Anton Merkulov : EMF dosimetry, analysis of exposition EMF, EMF test

— [ doctor Oleg Grigoriev : coordination of researches, general idea, the theory, the analysis of results, management, individual sensitivity...

**Many thanks for attention!**

**Great thanks Eileen O'Connor,  
EM Radiation Research Trust and  
Institution of Mechanical Engineers!**