**Experimental measurement protocol of the BCC project**

**Prerequisites**

1. The experimental measuring devices are:
   1. On the sender side: a Tektronix AFG3252C generator, a Tektronix MSO4032 oscilloscope, and a turret-type custom made multiplexer with one central and 6 peripheral outputs.
   2. On the receiver side: a battery-powered Raspberry Pi Model 3 with an Analog Discovery 2 device, and a multiplexer equal to the sender side.
   3. The electrodes are flexible, gold-plated.
2. A galvanic connection is used, with two skin-connected electrodes on each side.
3. The parameters to be measured are: the voltage drop on the receiver side, and the voltage drop on the sender side, for a sinusoidal signal.
4. The frequencies of the measured signal are as follows (Hz):   
   50000 100000 200000 400000 600000 800000 1000000 2000000 3000000 4000000 5000000 6000000 7000000 8000000 900000 0 10000000 15000000 20000000
5. All measurements take place in Cabinet 315.
6. The room temperature is 20 degrees, with a permissible deviation of +- 1 degree.
7. Experiments are organized with the participation of at least two people from scientific and scientific-technical personnel; they are hereinafter referred to as *experimenters.*
8. If in one of the experimental measurement sessions there is a deviation from these prerequisites or from other points of the protocol, it is recorded in writing on the experiment information sheet.

**Results of the experimental measurement**

The outcomes of each experimental measurement session are:

1. Measurement result files, in JSON format.
2. Measurement subject (hereinafter: *participant*) and room data (temperature and humidity) information sheet in an Excel document format corresponding to the sample provided in the cloud, and describing any deviations from the prerequisites, and any other special notes.
3. Signed information/consent sheet, in paper format.
4. Member contact information page.

Outcomes 1 and 2 should be stored in the EDI cloud. Results 3 and 4 are delivered to the EDI data manager within three working days, who organizes their storage.

**Experiment protocol**

1. The experimenter gives the participant an information/consent sheet and explains the experimental procedure.
2. The participant familiarizes himself with the information sheet and asks clarifying questions to the present experimenters.
3. The participant confirms his consent to participate in the experiment with his signature.
4. The experimenter writes down the participant's biometric data on the computer, in the experiment information sheet and assigns the participant a unique (random) identifier taken from the identified table.
   1. Biometric data given by the participant himself are: height, gender, age, complaints about being cold
   2. Other biometric data are measured at this point, specifically: participant's weight, body fat content (according to body impedance scales), participant's skin temperature, visual assessment of the amount of sweat on the skin, as well as, if not already known, arm-to-arm and foot-to-hip distances,
5. The participant or the experimenter writes down the participant's contact information (name, surname, e-mail or phone number) along with his identifier on paper; the organizer of the experiment transfers this information to the EDI data manager for storage after the end of the experiment.
6. The participant changes into appropriate clothing (shorts and t-shirt) in a closed room.
7. The experimenter records the temperature and relative humidity in the experimental room.
8. The experimenter measures the length of the circumference in the places where the electrodes will be attached to the limbs and records the data in the table
9. The participant lies down on the couch.
10. The experimenter attaches the electrodes to the participant by first applying gel to the participant's skin. The experimenter should wear disposable gloves and the electrodes should be sterilized in the presence of the participant.
11. When all the electrodes are attached, the experimenter starts the signal loss measurement by running a command on the computer controlling the measurement.
12. Measurements are performed automatically; during measurements, the experimenter graphically sees the obtained results and can stop the experiment, change the electrode positions, etc. if there are obvious problems in the results.
13. When the measurements are complete, the experimenter removes the electrodes from the participant.
14. In the event that the number of measurements in the experiment is expected to be greater than can be made with the measuring device, repeat the previous three points until all measurements are completed.
15. The experimenter collects the results and places the measurement results and experiment info sheet in the results folder in the EDI cloud.