

$$\text{formula } \varphi = K_1 (\varphi_s - \varphi_b) \quad (1)$$

where φ in beta-radiation intensity from surface in particles per second from square centimetre [$1/(s \cdot \text{cm}^2)$ or $s \cdot \text{cm}^{-2}$];

K_1 - coefficient equal to 0,01 (Table 3);

φ_s - instrument's readings with removed cover;

φ_b - readings corresponding to external gamma-radiation background.

7.3.11. To achieve more precise measurement result (within admissible values of basic measurement error) at values of beta-radiation intensity from surface less than $10 \text{ } 1/(s \cdot \text{cm}^2)$, i.e. less than $600 \text{ B-particles}/(\text{min} \cdot \text{cm}^2)$ it is necessary to repeat measurement in lower S3 slide-switch position ("0.001

x0.001

x20"). Other controllers' position is not changed. In this case reading difference ($\varphi_s - \varphi_b$) should be multiplied by coefficient 0.001 (Table 3) and you will get the result in particles per second from square centimetre. To get intensity in particles per minute from square centimetre the result should be multiplied by 60. Measurement cycle time is (175-185)s.

7.4. Measurement of radionuclide caesium-137 specific activity.

7.4.1. Remove back cover-filter.

7.4.2. Set code-switch S4 sliders to the positions shown in Fig.3

7.4.3. Set the instrument's controllers: S2 slide-switch - in the upper ("OFF"), and S3 - in the lower position ("x0.001

x0.001

x20")

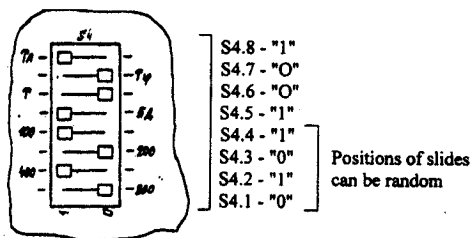


Fig.3

7.4.4. Till in a measurement dish (instrument's halfcasing) with radiologically "clean" water up to the mark on the interior wall of the dish and put the instrument above the dish as it is shown in Fig.4 .

7.4.5. Switch on the instrument by shifting S1 switch to "ON" position. Take 5 readings of the instrument, that corresponds to instrument's own radiological background ($A_{b1}, A_{b2}, A_{b3}, A_{b4}, A_{b5}$) and write them down. In order to reduce the overall time of measurement perform short-term breaks in instruments operation by switching it on/off each time the reding is taken. Switch off the instrument as soon as all the redings are taken.

7.4.6. Calculate the average value of the obtained results (A_b) using the formula (2):

$$A_b = \frac{A_{b1} + A_{b2} + A_{b3} + A_{b4} + A_{b5}}{5}, \quad (2)$$

where $A_{b1}, A_{b2}, \dots, A_{b5}$ are separate background reading of the instrument during five measurements.