

**ASIDC ECOTEST SOFTWARE
FOR AUTOMATED SYSTEM OF INDIVIDUAL
DOSIMETRY CONTROL**

BICT.412161.018

USER GUIDE

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1 ASIDC ECOTEST SOFTWARE

1.1 Foreword

The Scientific and Production Private Enterprise “Sparing-Vist Center” is a well-known developer and manufacturer of radiation measurement instruments and systems of ECOTEST trademark in Ukraine and worldwide. Today, there is a growing need for new and technically advanced radiation measurement instruments. In order to further develop and increase its competitiveness, the company has developed a new software for integrated individual dosimetric monitoring of personnel at nuclear power facilities, companies and institutions that deal with ionizing radiation sources.

ASIDC Ecotest Software meets the latest technical and technological requirements for design and functionality. ASIDC Ecotest as part of the individual dosimetry control system is intended for work with DKG-21 and DKG-21M personal gamma radiation dosimeters as a hardware system component.

1.2 Software and Hardware requirements

1. The IBM-compatible personal computer (hereinafter - PC) running Windows 10 is needed to operate ASIDC Terminal application. The PC must be equipped with USB/IrDA ECOTEST adapter or a similar model.

2. A PC running *NIX or Windows family system with the installed Apache, Nginx, IIS or a similar server PHP v 5.3. supported or higher version is required for operation of the Web client (Control Panel). The hardware requirements must comply with those of Apache and Microsoft.

3. A PC running *NIX or Windows family OS with the installed Java Runtime Environment, as well GlassFish 4.0 or Tomcat 7 web-server are required to ensure operation of the server.

4. To use the system, you need a PC with the following minimum characteristics: Intel Core i5 or Intel Xeon processor and 4 GB RAM.

5. For a comfortable use of the system, all computers must be connected to a local network with a data rate of at least 100 MB/s (100BASE-T).

1.3 Purpose of use

The software is intended for functioning as part of the "Stand-alone portable radiation monitoring kit for NPP emergency and radiation surveillance teams" as a subsystem of collecting, storage and processing of dosimetric information to keep an automated database of personnel radiation exposure, where personal gamma radiation dosimeters DKG-21 and DKG-21M are used.

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for automated system of individual dosimetry control*

ASIDC Ecotest SW is intended for:

- Automated contactless reading of measurement results from the dosimeters and data storage in the database;
- Automated contactless programming of operating modes of the dosimeters;
- Storage, control, viewing in tabular and graphic form, further processing, generation and printing out reports on dosimetric measurements results.

Information about proper operation and use of technical capabilities of personal gamma radiation dosimeters DKG-21 and DKG-21M can be found in the operating manual for a specific type of the dosimeter.

1.4 Software configuration

The software consists of three functionally interconnected subsystems:

- Terminal (ASIDC Ecotest Terminal)
- Web Client (Control Panel)
- Hosting server.

Terminal is responsible for operation with dosimeters and sends data to the server. It runs on the PC with the installed Windows OS.

Web Client displays data, generates reports, and administers the system.

Hosting server is responsible for receiving, storage, processing and providing data in accordance with the user's access rights.

1.5 User identification

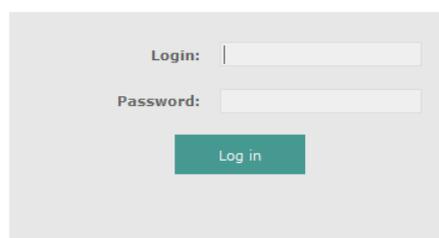
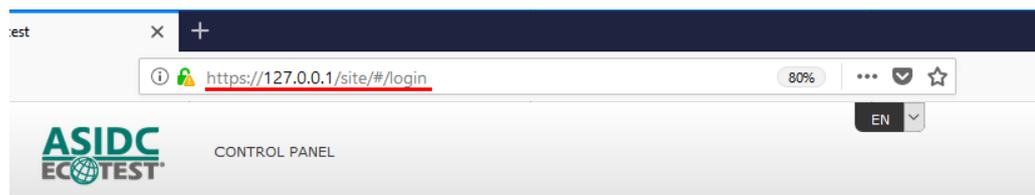
Users are identified in the system using login/password pair. Login is a unique identifier that enables unambiguous identification of each user. Password is a secret code known only to the user and used to confirm user's identity.

2 WEB CLIENT (Control Panel)

Web client is a software module, which allows managing users, dosimeters, programming templates, and other system objects, as well as browsing dosimetric information. Besides, Web client allows viewing reports about the collected data in a convenient form.

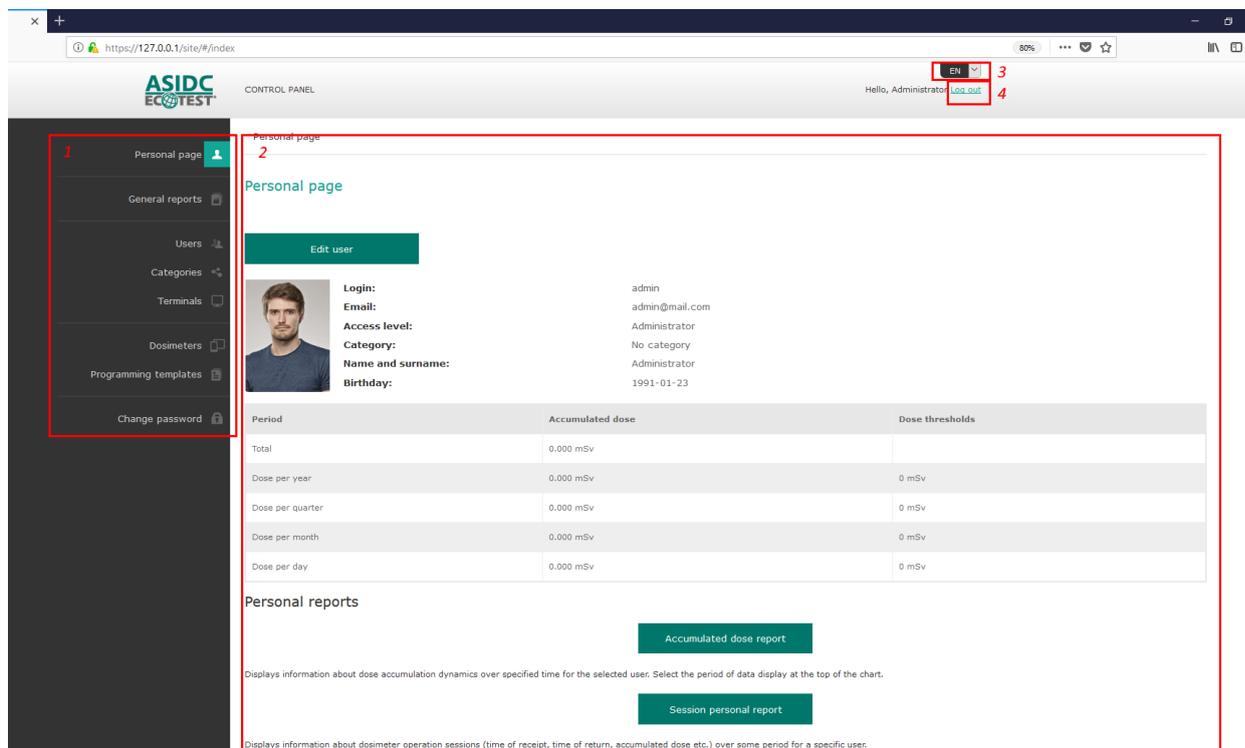
2.1 Authorization

1. Open a browser with an access to the server. Input an IP address or a domain name (ask your administrator, who installed the server software) in the address bar.
2. Pass authorization by entering your login and password in the authorization form to start working with the system.
3. Click [Log in] or press <Enter> key.

A login form with a light gray background. It contains two input fields: "Login:" followed by a text input field, and "Password:" followed by a password input field. Below these fields is a green button with the text "Log in" in white.

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2.2 User interface



1. Main menu.

2. Home screen of the application (serves to display information according to the selected items in the menu)

3. Interface language switch

4. Log out button

Personal page – information about the user and his\her accumulated dose. Besides, here you can view, printout or export personal reports about accumulated dose and sessions into .doc (for MS Word), .xls (for MS Excel) or .xml open formats.

General reports – provides extended information about collected data in a tabular or graphical view, an option to print out or export data to .doc (for MS Word), .xls (for MS Excel) or .xml open formats.

Users – provides information about all users and their access to personal data.

Categories – information on the categories and maximum permissible exposure limits for each category.

Dosimeters – information about the dosimeters registered in the system.

Terminals – information about registered terminals, which can communicate data collected from the dosimeters to the server.

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Programming templates – information about the templates of operation modes settings for dosimeters programming, which were preset by the system administrator.

Change password – you can change your login password here.



This menu and interface can change according to user's access rights.

2.3 Users

Users' page is available to administrators, operators and observers. They can view user's personal data and accumulated doses. Only administrators may add new users or edit their personal data.

Code	Name and surname	Access level	Category	Date of birth		
1	Administrator	Administrator	No category	1991-01-23		
2	Operator	Operator	No category	1991-01-01		
3	Ivan Romanov	Employee	Category B	1986-10-08		
4	Peter Lukashchuk	Employee	Category B	1991-01-01		
5	Vasyl Poddubny	Employee	Category A	1990-01-01		
6	Elena Vasilenko	Observer	Category C	1990-01-01		
7	Pavel Sidorchuk	Employee	Category B	1990-01-01		
8	Andrei Voloshin	Employee	Category C	1990-01-01		
9	Tester	Observer	No category	1991-01-01		

1. Filter users.

2. A switch to the form of new user adding to the system.

3. A switch to a personal page of the selected user.

4. A switch to user's data editing form.

5. Delete a user.

2.3.1 Filter users:

1. By category – select the required checkbox in the categories that will be displayed in the list and click [Filter];

2. By access level – select the groups you want to filter and click [Filter].

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2.3.2 Add new user

To add a new user you have to fill in the form (all fields have to be filled in) and click [Save]. The user will be added to the list.

To add user's photo click [Select photo] button, click [Open] as soon as you choose the file.



Login should consist of no less than 3 and no more than 32 symbols. You may use Latin letters and digits. The first symbol of your login should be a letter.

After clicking [Save] button, a message about creation of a new user appears with his/her personal login password. **Remember this password because it will be used to log into Web client or Terminal.** The user can later change it by choosing *Change Password* in the menu.

Code	Name and surname	Access level	Category
1	Administrator	Administrator	No category
2	Operator	Operator	No category
3	Ivan Romanyov	Employee	Category B

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If necessary, the administrator can reset the password of any user. To do this, go to the control panel/users/, click on the employee's surname. Choose *Reset password* in the open menu. Remember new password.

Personal page / andreyvoloshin

Personal page

Password for user andreyvoloshin was successfully reset
New password: 957763

Edit user Reset password Delete user

Login: andreyvoloshin
Email: a.voloshin@ecotest.ua
Access level: Employee
Category: Category B
Name and surname: Andrey Voloshin
Date of birth: 1986-10-10

Period	Accumulated dose
Total	0.000 mSv
Dose per user	0.000 mSv

2.3.3 Edit user data

When you open the user data edit form, you can change any data except login (it is non editable). To change the category or the access level, select what you need from the list.

To delete a photo, select [Delete photo] checkbox, then [Select photo] to change it.

After editing the data, click [Save] and the user's personal information will be changed.

General reports

Users

Categories

Terminals

Dosimeters

Programming templates

Change password

Edit user

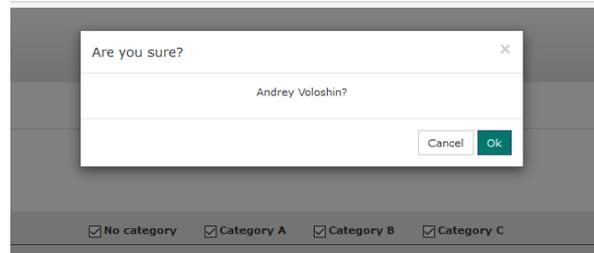
Login: andreyvoloshin
Email: a.voloshin@ecotest.ua
Access level: Employee
Category: Category C
Name and surname: Andrey Voloshin
Date of birth: 10/10/1986
Photo: Select photo

Save

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2.3.4 Delete user

To delete a user, click **X** in the user list, or [Delete user] button on his\her personal page, and then the following message will appear:



If you really want to delete this user click [OK].

2.3.5 View user's personal information

To navigate to your personal page, you need to click on [Personal Page] button or select the desired user from the list. Other users' personal information is available for viewing to administrators, operators and observers, but every employee can view only his/her own information and reports.

Personal page / ivan

Personal page

Edit user 1 Reset password 2 Delete user 3

Login: ivan
Email: ivromanov@ecotest.ua
Access level: Employee
Category: Category B
Name and surname: Ivan Romanov
Date of birth: 1986-10-08 4

Period	Accumulated dose	Dose thresholds
Total	0.012 mSv	
Dose per year	0.012 mSv	2 mSv
Dose per quarter	0.000 mSv	0.5 mSv
Dose per month	0.000 mSv	0.16 mSv
Dose per day	0.000 mSv	0.006 mSv

5 6

Personal reports

Accumulated dose report

Displays information about dose accumulation dynamics over specified time for the selected user. Select the period of data display at the top of the chart.

Session personal report

Displays information about dosimeter operation sessions (time of receipt, time of return, accumulated dose etc.) over some period for a specific user. 7

1. A switch to data editing form.
2. Reset password.
3. Delete user.
4. User's main information.
5. Accumulated doses for a certain period (day, month, quarter and year).
6. Dose accumulation limits specified for the category to which the user belongs.
7. A switch to user's personal reports.

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2.3.6 Accumulated dose report

Displays dose accumulation dynamics over specified time. This report is available to administrators and observers, but every employee can view only his/her own report.

Personal page / Accumulated dose report

Report has been created: Administrator, 2019-07-24 11:25:44;
Data has been included: 2019-06-10 - 2019-07-24

Accumulated dose report

Included: 06/10/2019 - 07/24/2019
Excluded: mm/dd/yyyy - mm/dd/yyyy
Serial number:
Model: All models

User Profile:
Login: patrickowens
Email: patrickowens@email.com
Access level: Employee
Category: Category B
Name and surname: Patrick Owens
Date of birth: 1970-07-22

Dose Accumulation Graph: Shows a steady increase in accumulated dose (mSv) over time from June 10, 2019, to July 24, 2019.

Session	Operator	Dosimeter	Session start-up	End of session	Accumulated dose, mSv	RE	PO
598	Michael Crawford	DKG-21M (02090067)	2019-06-10 12:00:00	2019-06-10 20:00:00	0.002	5	6
597	Jack Kovalsky	DKG-21M (00855705)	2019-06-11 12:00:00	2019-06-11 20:00:00	0.004		
596	Grant Briggs	DKG-21 (07944846)	2019-06-12 12:00:00	2019-06-12 20:00:00	0.003		
595	Oswald Kelley	DKG-21M (09099548)	2019-06-13 12:00:00	2019-06-13 20:00:00	0.004		

1. Export data to .doc, .xls or .xml format and print report.
2. Filter data.
3. Dose accumulation graphs.
4. A switch to session report.
5. Range exceeding: during accumulation of ambient dose equivalent, the dosimeter measurement range was exceeded.
6. Power off: power of the dosimeter was incorrectly disabled during the session.

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Data export

Click an icon to export data to:



.doc (for further work in word processor MS Word);



.xls (for MS Excel spreadsheet);



.xml, enables data processing in any application, which reads this format.

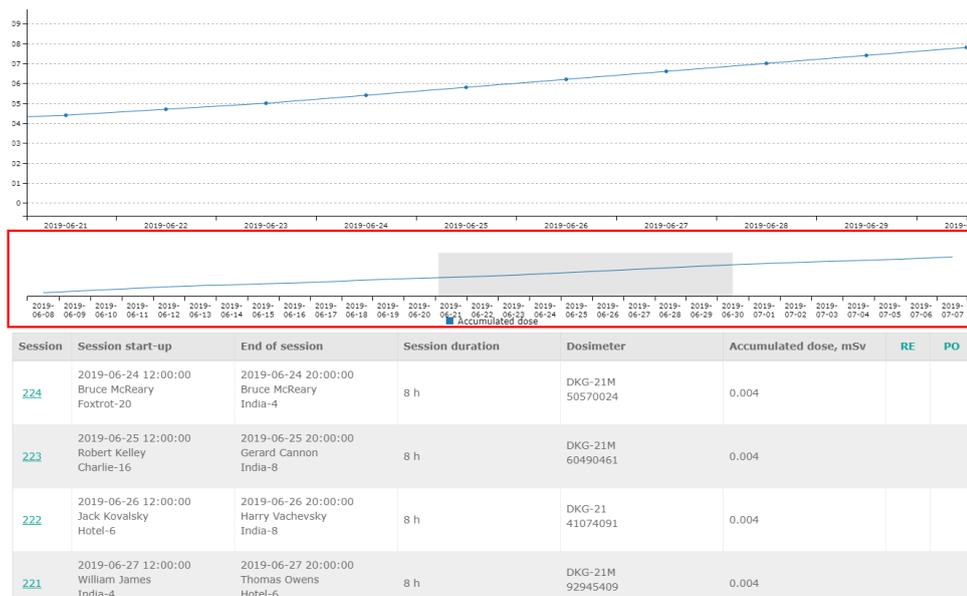
To print the report click Print  icon.

Report data filtering

- Included - the period from/to, for which information should be displayed;
- Excluded - the period from/to, which should be ignored/excluded when outputting information;
- Serial number – input dosimeter's number;
- Model – choose the dosimeter's model from the list.

Graph

The graph displays information filtered by the user. To select a specific period of accumulated dose, you need to highlight the desired segment in the graph below by clicking the left mouse button or moving the selection area to the sides.



When rolling over the point in the graph, information about the value of accumulated dose and the date when data was obtained is displayed.

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2.3.7 Personal sessions report

Displays information about dosimeter sessions (time of receipt, time of handing in, accumulated dose, etc.) over some period for a specific user.

This report is available to all users to view their personal data. Only administrators and observers can view other users' information.

Personal page / Sessions personal report

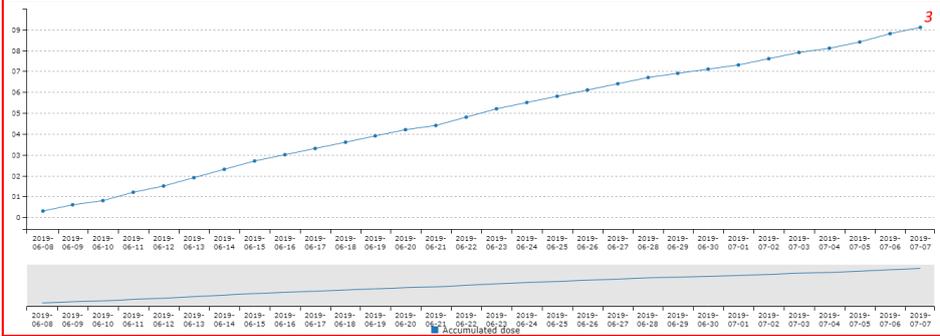
Report has been created: Administrator, 2019-07-24 11:27:08;
Data has been included: 2019-06-10 - 2019-07-24

Sessions personal report

1 [Print] [Export] [Share] [Refresh]

Included: 06/10/2019 - 07/24/2019
Excluded: mm/dd/yyyy - mm/dd/yyyy 2 [Filter]

 **Login:** patrickowens
Email: patrickowens@email.com
Access level: Employee
Category: Category B
Name and surname: Patrick Owens
Date of birth: 1970-07-22



Session	Session start-up	End of session	Session duration	Dosimeter	Accumulated dose, mSv	RE	PO
598 4	2019-06-10 12:00:00 Michael Crawford Foxtrot-20	2019-06-10 20:00:00 Joseph Down Echo-14	8 h	DKG-21M 02090067	0.002	5	6
597	2019-06-11 12:00:00 Jack Kovalsky India-4	2019-06-11 20:00:00 Oswald Kelley Charlie-16	8 h	DKG-21M 00855705	0.004		
596	2019-06-12 12:00:00 Grant Briggs India-4	2019-06-12 20:00:00 Chad Crawford Hotel-6	8 h	DKG-21 07944846	0.003		
595	2019-06-13 12:00:00 Oswald Kelley India-8	2019-06-13 20:00:00 Michael Crawford Foxtrot-15	8 h	DKG-21M 09099548	0.004		

1. Export data to .doc, .xls or .xml format and print report.
2. Filter data.
3. Dose accumulation graphs.
4. Open session report.
5. Range exceeding: during accumulation of ambient dose equivalent, the dosimeter measurement range was exceeded.
6. Power off: power of the dosimeter was incorrectly disabled during the session.

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2.3.8 Session report

Click the session's number in the report on accumulated dose or users' sessions to switch to this page.

General reports / Session report

Report has been created: Administrator, 2019-07-24 11:28:20;

Session report

Sessions: 598 Forward

Login: patrickowens
Email: patrickowens@email.com
Access level: Employee
Category: Category B
Name and surname: Patrick Owens
Date of birth: 1970-07-22

Session: 598
Session start-up: 2019-06-10 12:00:00
Issuing terminal: Foxtrot-20
Dosimeter issued by: Michael Crawford
End of session: 2019-06-10 20:00:00
Receipt terminal: Echo-14
Dosimeter received: Joseph Down
Serial number: 02090067
Dosimeter's model: DKG-21M
Dose accumulation time: 8 h
Accumulated dose: 0.002 mSv
Dose storage interval: 120 min
Dose rate threshold: 0.02 µSv/h
Dose threshold per session: 0.008 mSv

Operating mode:

- Show dose rate
- Show dose rate threshold
 - Edit dose rate threshold
- Show accumulated dose
- Show dose threshold
 - Edit dose threshold
- Show clock
 - Allow clock adjustment
 - Use alarm clock
 - Allow alarm clock adjustment

Code	Time	Accumulated dose, mSv
214921	2019-06-10 11:00:00	0.000
214922	2019-06-10 11:01:30	0.000
214923	2019-06-10 11:03:00	0.000
214924	2019-06-10 11:04:30	0.000
214925	2019-06-10 11:06:00	0.000
214926	2019-06-10 11:07:30	0.000

1. Export data to .doc, .xls or .xml format and print report.
2. Input number to switch to another session.
3. Information about a session and dosimeter, which was used during it.
4. Power off: power of the dosimeter was incorrectly disabled during the session.

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2.4 General reports

This page contains information about general (not personal) data in tabular or graphic view.



The amount of information provided in the reports can differ from the given above depending on the user's access rights.

2.4.1 Session general report

Only administrators of the system and observers can view this report.

Session	Name and surname	Session start-up	End of session	Session duration	Dosimeter	Accumulated dose, mSv	RE	PO
26	Ivan Romanov	2019-07-08 14:31:58 Operator Ecotest	2019-07-08 14:32:14 Operator Ecotest	16 s	DKG-21 1102993	0.000	5	6
27	Ivan Romanov	2019-07-08 14:32:44 Operator Ecotest	2019-07-08 14:33:06 Operator Ecotest	22 s	DKG-21 1102993	0.000		
28	Ivan Romanov	2019-07-08 14:33:25 Operator Ecotest	2019-07-08 14:34:25 Operator Ecotest	1 min	DKG-21 1102993	0.000		
29	Ivan Romanov	2019-07-08 14:34:55 Operator Ecotest	2019-07-08 14:35:26 Operator Ecotest	31 s	DKG-21 1102993	0.000		
30	Administrator	2019-07-08 14:36:54 Administrator Ecotest	2019-07-08 14:39:32 Administrator Ecotest	2 min, 38 s	DKG-21 1102993	0.000		

1. Export data to .doc, .xls or .xml format and print report.
2. Filter data by session date (Included/Excluded).
3. Open personal page of the selected user.
4. Open certain session report.
5. Range exceeding: during accumulation of ambient dose equivalent, the dosimeter measurement range was exceeded.
6. Power off: power of the dosimeter was incorrectly disabled during the session.

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2.4.2 Users report

This report contains general information on the accumulated dose of all users over a given period of time with an option of comparing and analyzing data. The report allows you to filter users by exceeding certain limit of yearly, monthly, daily dose. This report is only viewable by administrators and observers.

Personal page

General reports

Users

Categories

Terminals

Dosimeters

Programming templates

Change password

General reports / Users report

Report has been created: Administrator, 2019-07-24 11:28:54;

Users report

1



Category: No category Category A Category B Category C

Access level: Administrator Observer Operator Employee

Search name:

Accumulated dose: N/A less equals more mSv

3

Users who exceeded the accumulated dose limit are highlighted with red color

<input type="checkbox"/>	Code	Name and surname	Access level	Category	Date of birth	Total, mSv	Dose per year, mSv	Dose per quarter, mSv	Dose per month, mSv	Dose per day, mSv
<input checked="" type="checkbox"/>	81	Henry Briggs	Employee	Category C	1983-08-20	0.084	0.084	0.084	0.039	0.000
<input type="checkbox"/>	82	Michael Boyd	Employee	Category A	1971-11-20	0.088	0.088	0.088	0.040	0.000
<input type="checkbox"/>	83	Henry Boyd	Employee	Category A	1972-01-15	0.086	0.086	0.086	0.040	0.000
<input type="checkbox"/>	84	Joseph McAlister	Employee	Category A	1974-04-23	0.091	0.091	0.091	0.040	0.000
<input checked="" type="checkbox"/>	85	Bruce Kelley	Employee	Category B	1977-02-25	0.086	0.086	0.086	0.041	0.000

1. Export data to .doc, .xls or .xml format and print report.
2. Graph.
3. Filter users.
4. Select a field to create graphics.

You can filter users by the following criteria:

- Category
- Access level
- Dose: for a day, month, quarter, year, and for exceeding a certain dose threshold (more or less this dose)

To choose certain users you have to select them with mouse pointer (users are numbered) on the graph. After hovering the cursor, the column displays information about the accumulated dose for a year, quarter, month, and day.

2.4.3 Dosimeters report

Contains information on the list of all dosimeters from which data was collected. This report is available to administrators, operators and observers of the system.

General reports / Dosimeters report

Report has been created: Administrator, 2019-07-24 11:30:00;

Dosimeters report

1 [Export] [Print] [Excel] [PDF] [Printer]

Model: DKG-21 DKG-21M

Battery replace End of use Filter

Registration date: mm/dd/yyyy - mm/dd/yyyy 2

Dosimeter with expired battery life and (or) use are highlighted with red

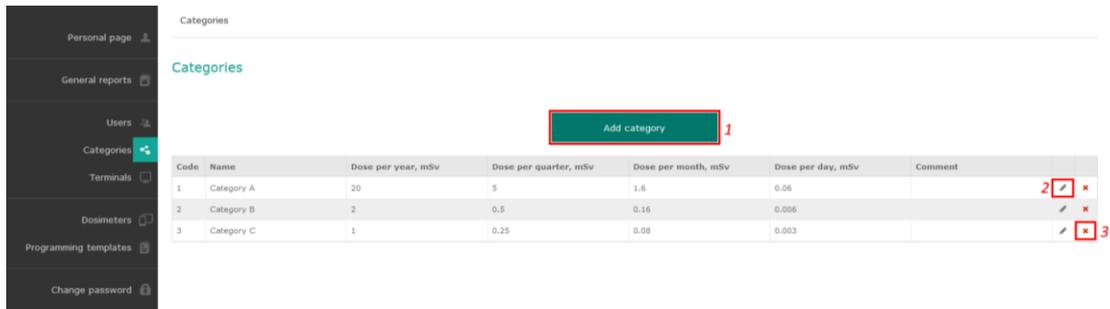
Code	Dosimeter's model	Serial number	Registration date	Total operation time	Battery type	Battery expiry date	End of use
1	DKG-21	49035546	2019-07-08 12:23:37	15 d, 23 h, 6 min, 23 s	CR2430	2019-03-26	2023-10-27
2	DKG-21M	41794173	2019-07-08 12:23:37	15 d, 23 h, 6 min, 23 s	CR2430	2019-03-27	2020-01-05 3
3	DKG-21	93969007	2019-07-08 12:23:37	15 d, 23 h, 6 min, 23 s	CR2450	2020-06-20	2021-03-28
4	DKG-21M	20864963	2019-07-08 12:23:38	15 d, 23 h, 6 min, 22 s	CR2450	2020-05-21	2019-10-23

1. Export data to .doc, .xls or .xml format and print report.
2. Filter data.
3. Dosimeters with an expired battery life and (or) expired calibration period are highlighted with red (the dosimeter needs calibration).

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2.5 Categories

This page contains a list of categories and maximum permissible values of accumulated dose that are defined for each of them. Access to this page is restricted to administrators and observers, but only administrators can add, remove, and edit categories.

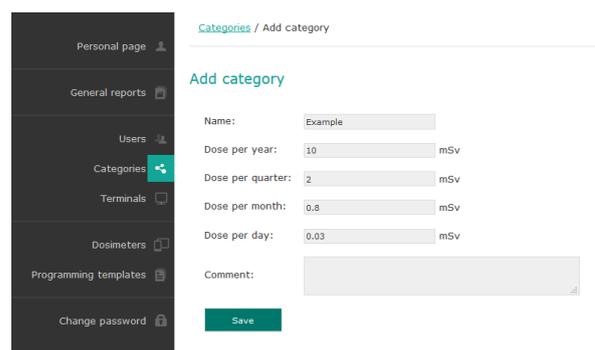


Code	Name	Dose per year, mSv	Dose per quarter, mSv	Dose per month, mSv	Dose per day, mSv	Comment
1	Category A	20	5	1.6	0.06	
2	Category B	2	0.5	0.16	0.006	
3	Category C	1	0.25	0.08	0.003	

1. Add a new category (a window of new category creation appears).
2. Edit the existing category.
3. Delete category (after clicking, the "Are you sure?" message appears. If you really want to delete the category, click [OK].)

2.5.1 Add new category

To add a new category, you need to fill in the form (all fields must be filled in, except for the Comment field that is optional) and click [Save], after which the category will be registered in the system.



Categories / Add category

Add category

Name:

Dose per year: mSv

Dose per quarter: mSv

Dose per month: mSv

Dose per day: mSv

Comment:



*Use not "comma", but "point" in all fields for the decimal point
when you enter fractional numbers.*

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2.6 Dosimeters

This page contains a list of all dosimeters registered in the system. It is available to administrators, operators, and observers, but only administrators can add, delete, and edit registered dosimeters.

1. Filter dosimeters.
2. Register new dosimeter (a new dosimeter registration window appears).
3. Edit registered dosimeter.
4. Remove dosimeter (after clicking, the "Are you sure?" message appears. If you really want to delete the dosimeter, click [OK]).

To filter some dosimeter models, and, if necessary to replace the battery or carry out verification, check the box next to their name and click [Filter]. The dosimeters according to the set parameters will be displayed in the list.

2.6.1 Register new dosimeter

To register a new dosimeter, you need to fill in the form (all fields must be filled in) and click [Save], after which the dosimeter will be added to the list.



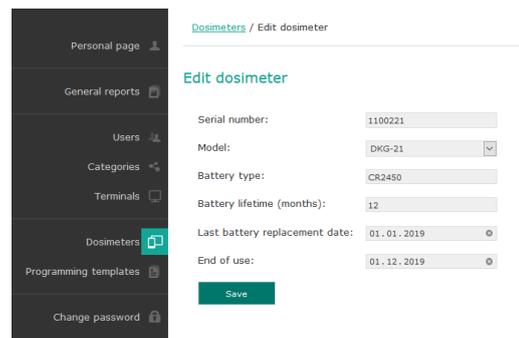
*Serial number can be found on the dosimeter housing.
The number consists of **7 digits**.
Select a dosimeter model from the drop down list.*

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2.6.2 Edit registered dosimeter

When you open the dosimeter edit form, you can change any data except serial number (it is unchangeable). To change the model, select the required one from the list.

After editing the data, click [Save]. The dosimeter information will be changed.



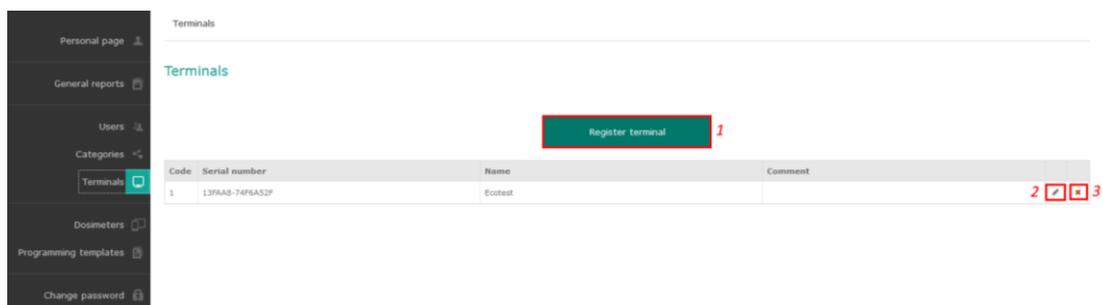
The screenshot shows the 'Edit dosimeter' form. On the left is a dark sidebar menu with options: Personal page, General reports, Users, Categories, Terminals, Dosimeters (highlighted), Programming templates, and Change password. The main content area is titled 'Edit dosimeter' and contains the following fields:

- Serial number: 1100221
- Model: DKG-21 (dropdown menu)
- Battery type: CR2450
- Battery lifetime (months): 12
- Last battery replacement date: 01.01.2019
- End of use: 01.12.2019

A green 'Save' button is located at the bottom of the form.

2.7 Terminals

This page contains a list of all terminals that are registered in the system and can send data collected from the dosimeters to the hosting server. Administrators and observers have access to the page, but only administrators can add, remove, and edit terminals.



The screenshot shows the 'Terminals' page. At the top, there is a 'Register terminal' button highlighted with a red box and labeled '1'. Below it is a table with the following data:

Code	Serial number	Name	Comment
1	13FAAD-74PSA52F	Ecotest	

At the bottom right of the table, there are three icons: a pencil (edit), a trash can (delete), and a plus sign (add), labeled '2', '3', and '4' respectively.

1. Register terminal (a new terminal registration window appears).
2. Edit registered terminal.
3. Delete terminal (after clicking, the "Are you sure?" message appears. If you really want to delete the terminal, click [OK])

2.7.1 Register new terminal

To register a new terminal, you need to fill in the form (all fields must be filled in, except for the Comment field that is optional) and click [Save], after which the terminal will be added to the system.

Personal page
General reports
Users
Categories
Terminals
Dosimeters
Programming templates
Change password

Terminals / Register terminal

Register terminal

Serial number: 13FAA8-74F6A52F

Name: Example

Comment:

Save



Terminal's serial number can be found in the Help menu of ASIDC Ecotest Terminal application.

2.8 Programming templates

This page contains a list of predefined templates of dosimeter mode setting that the terminal will offer to the operator during the dosimeter programming. Access to this page is available to administrators, operators, and observers, but only administrators can add, delete, and edit programming templates.

Personal page
General reports
Users
Categories
Terminals
Dosimeters
Programming templates
Change password

Programming templates

Programming templates

Add programming template

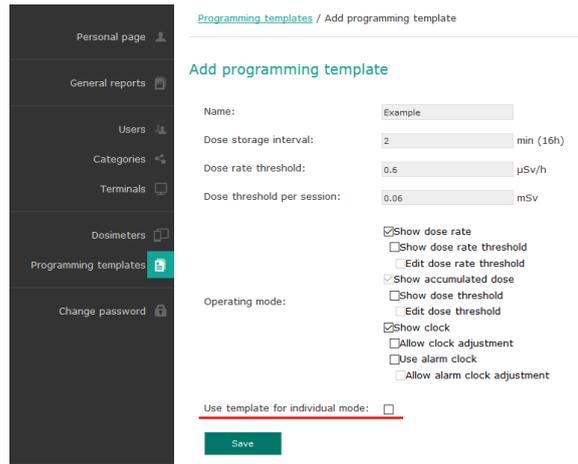
Templates used for individual templates programming are highlighted with red color

Code	Name	Dose storage interval, min	Dose rate threshold, µSv/h	Dose threshold per session, mSv
1	Individual	5	1	0.06
2	Example	2	0.6	0.05

1. Add a programming template (a window of new template addition appears).
2. Templates used for individual programming of dosimeters are highlighted with red.
3. Edit the existing programming template.
4. Delete (after clicking, the "Are you sure?" message appears. If you really want to delete the terminal, click [OK])

2.8.1 Add new programming template

To add a new programming template, you need to fill in the form (all fields must be filled in), select the required dosimeter operating modes, and click [Save], after which the template will be added to the system. The counter of days (a box to the right of the "Dose storage interval") shows when the dosimeter's memory will be filled during continuous operation with the given selected dose storage interval.



The screenshot shows the 'Add programming template' form. The left sidebar contains navigation options: Personal page, General reports, Users, Categories, Terminals, Dosimeters, Programming templates (highlighted), and Change password. The main content area is titled 'Add programming template' and contains the following fields and options:

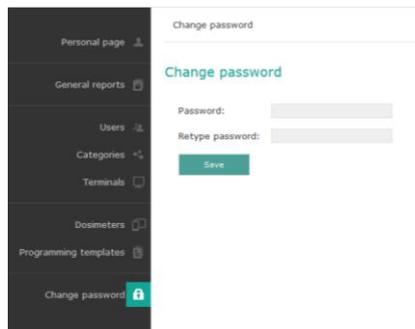
- Name: Example
- Dose storage interval: 2 min (16h)
- Dose rate threshold: 0.5 $\mu\text{Sv/h}$
- Dose threshold per session: 0.06 mSv
- Operating mode options:
 - Show dose rate
 - Show dose rate threshold
 - Edit dose rate threshold
 - Show accumulated dose
 - Show dose threshold
 - Edit dose threshold
 - Show clock
 - Allow clock adjustment
 - Use alarm clock
 - Allow alarm clock adjustment
- Use template for individual mode:
- Save button



*Check the box "Use template for individual mode" to create a programming template that will be used by employees when working with the terminal individually. **Only one** such template can be created.*

2.8.2 Password change

To change the password, you use to login, you must go to the "Change Password" page and fill in the appropriate fields, then click [Save]. The new password will be saved in the system.



The screenshot shows the 'Change password' form. The left sidebar contains navigation options: Personal page, General reports, Users, Categories, Terminals, Dosimeters, Programming templates, and Change password (highlighted). The main content area is titled 'Change password' and contains the following fields and options:

- Password: [text input]
- Retype password: [text input]
- Save button



*Password must contain not less than **four** and not more than **sixteen** characters.*

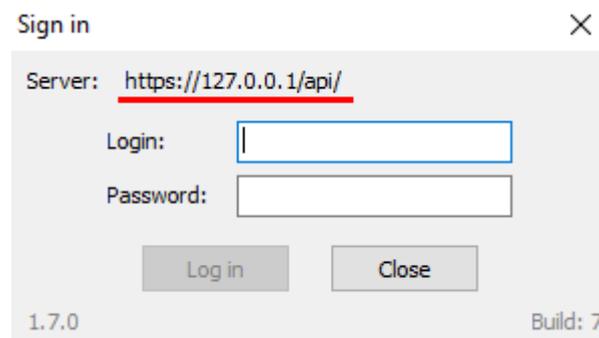
3 ASIDC ECOTEST TERMINAL

Terminal is a software module designed to work with DKG-21 dosimeters and other compatible models. The terminal allows the dosimeter to be programmed to work and read data accumulated during operation of the dosimeter. The readout data is divided into sessions. A session is a period of time from the moment the dosimeter is programmed to the moment of accumulated data reading.

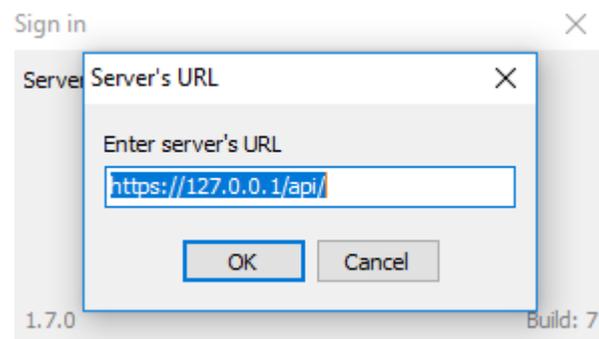
3.1 Authorization

To open the terminal, click on  icon on the desktop.

Enter login and password to start the program, then click [Enter] or <Enter> key.



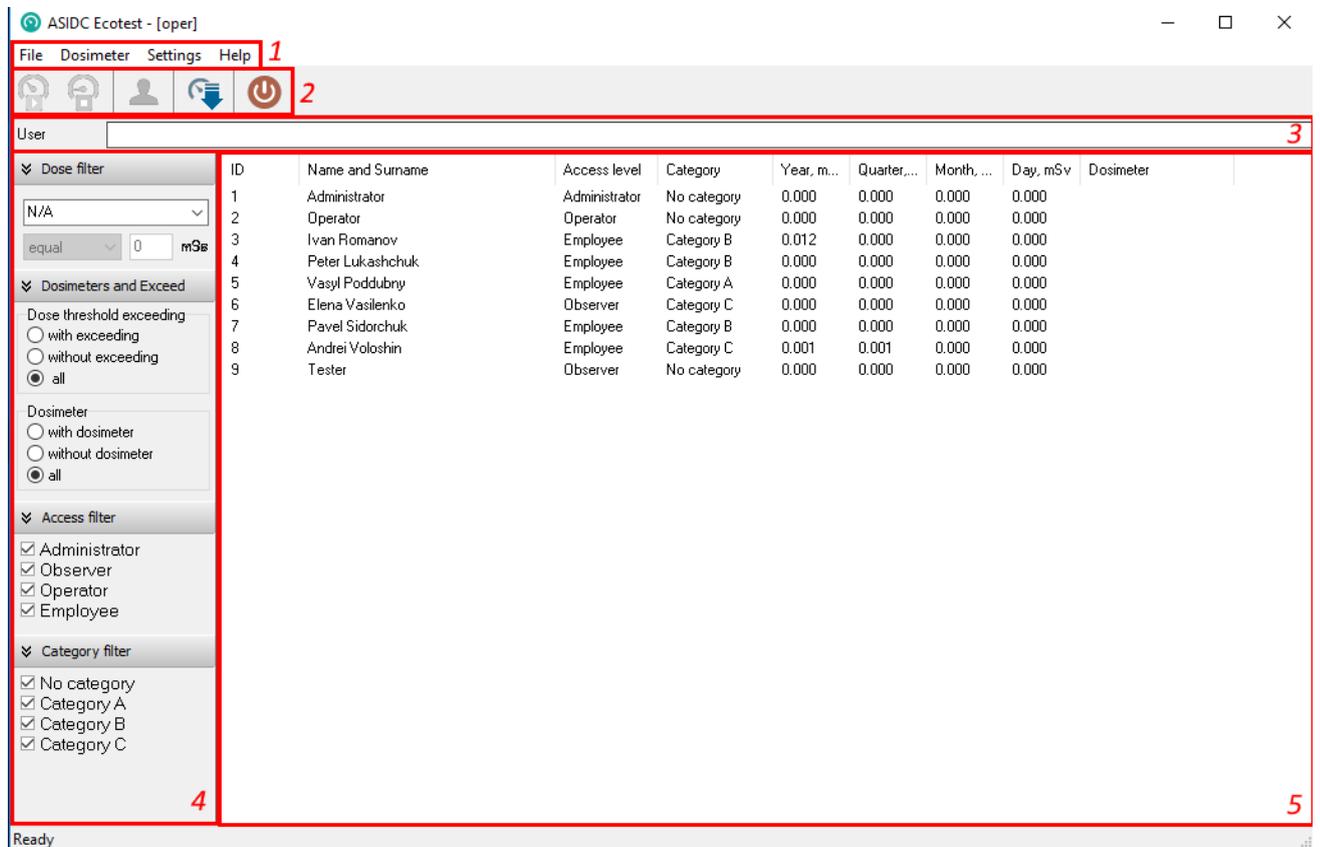
Input the IP address in the Server line (ask your administrator who installed the server software). If you want to change the IP address, click on it and enter the new one.



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3.2 User interface

Access to the full version of the application is only available to the operator.



1. Main menu.
2. Toolbar.
3. Search for users.
4. Filter users.
5. Home screen of the application (the list of users).

3.2.1 Main menu

File - by choosing this tab, you can log off.

Dosimeter - here you can program the dosimeter or read data from it.

Settings - allows you to select a COM port with an infrared adapter for communication with the dosimeter, change the interface language and set the number of users to be visible on the screen.

Help - view the terminal's serial number.

Tollbar buttons

-  Program dosimeter
-  Cancel session
-  Personal information
-  Read data
-  Exit

Search for users

Enter the last name or name of the required user and it will be displayed in the list.

Filter Users

You can filter users in the list by the following criteria:

1. By dose - select the required dose limit from the list (per day, month, quarter or year) and specify a value of more/less.
2. By exceeding the dose limit (with exceeding, without exceeding).
3. By dosimeters – an option to filter users with a dosimeter (during an open session) without a dosimeter or all users.
4. By access rights - check the box next to the access levels that should be displayed in the list.
5. By categories - check the box near the categories to be displayed in the list.

Users list

Employees with an open session are highlighted in **blue** and the table shows the dosimeter number assigned to the session.

Employees whose accumulated dose exceeds the permissible norm, defined by the category, are highlighted in **red** (it is not possible to program the dosimeter for these users).

If you right-click on the user's name, a menu appears where you can view personal information of the employee, program the dosimeter for him/her, open a new session, or close an earlier open session if the dosimeter is out of order or lost and it is impossible to read data from it.

3.3 Dosimeter programming

Dosimeter programming window opens if you:

- Double-click a left mouse button on the user's surname in the list;
- Right-click on the surname and select in the shortcut menu [Program dosimeter];
- Click on the surname, then select in "Device" menu - "Program dosimeter";
- Click on the surname and click on the toolbar icon 

Dosimeter programming

ID 3

Category Category B

Date of birth 08.10.1986

Name and surname Ivan Romanov

Template Individual

Dose accumulation time 2 days

Dose storage interval 5 min

Dose rate threshold 1 µSv/h

Dose threshold per session 0.06 mSv

Show dose rate

Show dose rate threshold

Edit dose rate threshold

Show accumulated dose

Show dose threshold

Edit dose threshold

Show clock

Allow clock adjustment

Use alarm clock

Allow alarm clock adjustment

READY

Program Cancel Close

1. Personal information of the employee.
2. List of dosimeter programming templates (if necessary).
3. Setting the operating modes of the dosimeter (fields and checkboxes).
4. Status bar.

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The operator can set the operating modes of the dosimeter himself or choose one of the already defined programming templates.

To start programming, turn on the dosimeter and, while symbols are flashing on the liquid crystal display (in maximum 15 s), place it so that the infrared port window of the dosimeter is at a distance of no more than 0.3 m in front of the USB/IrDA adapter window, and press [Program] button. Successful programming of the dosimeter is accompanied by a sound short-term signal of the dosimeter. Programming process will be displayed in the status bar (PROGRAMMING → SENDING DATA → COMPLETED: XXXXXXXX (where digits are a serial number of the assigned dosimeter)).

Dosimeter programming ×



ID

Category

Date of birth

Name and surname

Template

Dose accumulation time days

Dose storage interval min

Dose rate threshold µSv/h

Dose threshold per session mSv

Show dose rate

Show dose rate threshold

Edit dose rate threshold

Show accumulated dose

Show dose threshold

Edit dose threshold

Show clock

Allow clock adjustment

Use alarm clock

Allow alarm clock adjustment

COMPLETED: 1102993

After successfully programming of the dosimeter, click [Close] button.



You can not program the dosimeter if:

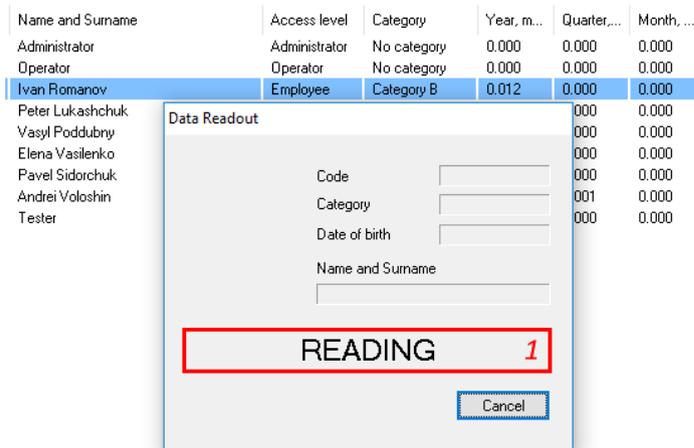
- *The user has an already open session and a programmed dosimeter;*
 - *The user's dose exceeds the permissible dose by the category;*
 - *The dosimeter's life has expired;*
- *The dosimeter is not registered on the server.*

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3.4 Read data from the dosimeter

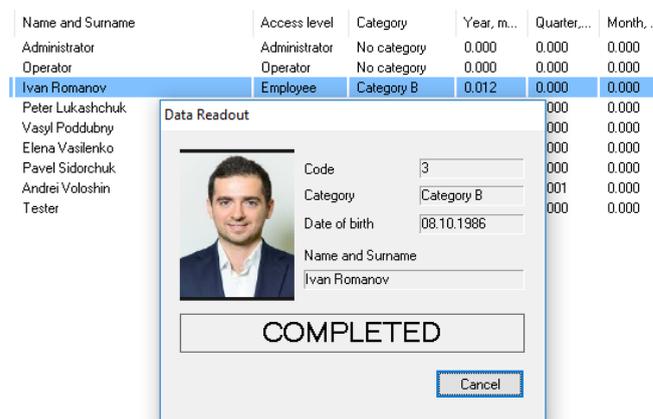
The data readout window opens in one of the following ways:

- Choosing "Read data" in "Dosimeter" menu;
- Clicking on the toolbar icon .



where: 1 – data reading status bar.

To read data from the dosimeter, you need to press and hold the dosimeter's MODE button before flashing of the liquid crystal display and, no more in 15 seconds, place it in the reading area so that the infrared port window of the dosimeter is not more than 0.3 m opposite the USB/IrDA adapter window. Data will be read automatically. The status bar will display the data readout process (READING → SENDING DATA → COMPLETED). Ensure that the procedure of information reading from the dosimeter is successful due to blinking "DATA" indicator of USB data/IrDA adapter and a sound signal. As soon as data from the dosimeter is read, the window displays information about the employee, to whom the dosimeter was assigned. Close "Data Readout" window.



When "READING" appears again in the status bar, you can put another dosimeter to the infrared port to read data.

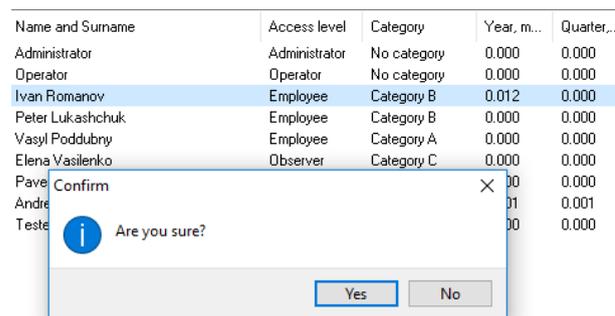
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3.5 Cancel session

Operator can close an earlier open session if the dosimeter is out of order or lost and it is impossible to read data from it.

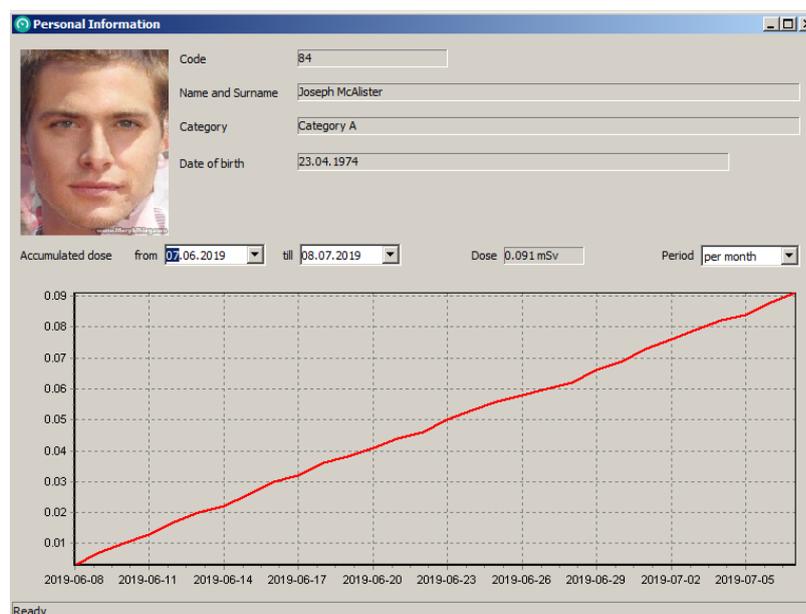
To cancel a session, right-click on the employee's surname whose session you want to close and select [Cancel Session] from the shortcut menu, or left-click on the employee's surname whose session you want to close and click on the toolbar icon .

Click [Yes] in the window if you really want to cancel the user session, or [No] if cancellation of the session is to be canceled.



3.6 Personal information

Personal Information window contains detailed information about the employee and exposure doses received by the employee for a specified period.



To open personal information you need to: right-click on the employee's surname and select [Personal Information] from the shortcut menu, or left-click on the employee's surname and click on  toolbar icon.

To display the dose for a period (year, month, quarter, or day), select the required one in the Period list. To specify a different period, select the date from/to.

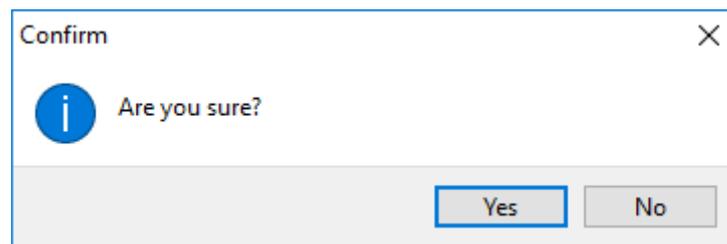
The accumulated dose for the selected period will be displayed in the "Dose" field.

You can scale the accumulated dose graph by selecting the desired time period by the cursor.

3.7 Exit application

To exit the application, do one of the following:

- Click  in the upper right corner of the terminal app window;
- Click on the toolbar icon .
- Choose "Exit" from the "File" menu.



To exit the program, click [Yes] or [No] to return.

3.8 Individual dosimeter programming

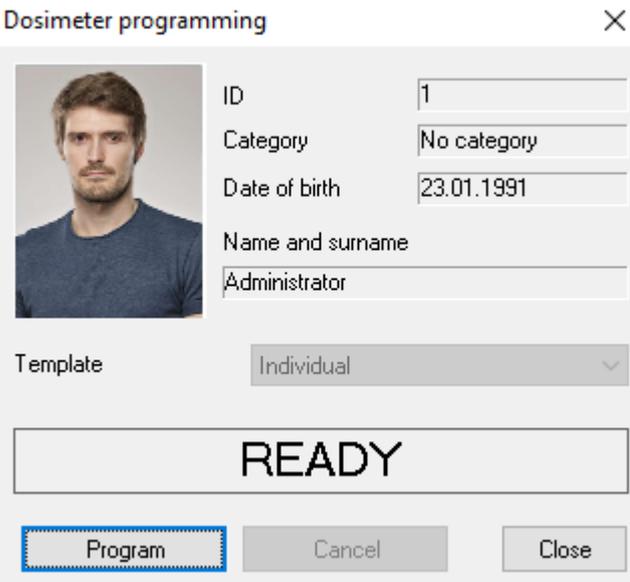
All users (except operators) after logging in the terminal application will only access the programming and data reading window from the individual dosimeter.

3.8.1 Dosimeter programming

Once logged in, the "Dosimeter programming" window opens immediately.

To start programming, turn on the dosimeter and while symbols on the liquid crystal display are flashing (in maximum 15 s), place it so that the infrared port window of the dosimeter is at a distance of no more than 0.3 m in front of the USB/IrDA adapter window, and press [Program] button. Successful programming of the dosimeter is accompanied by a sound short-term signal of the dosimeter. Programming process will be displayed in the status bar (PROGRAMMING → SENDING DATA → COMPLETED: XXXXXXXX (where digits are the serial number of the assigned dosimeter)).

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Dosimeter programming

ID: 1
Category: No category
Date of birth: 23.01.1991
Name and surname: Administrator

Template: Individual

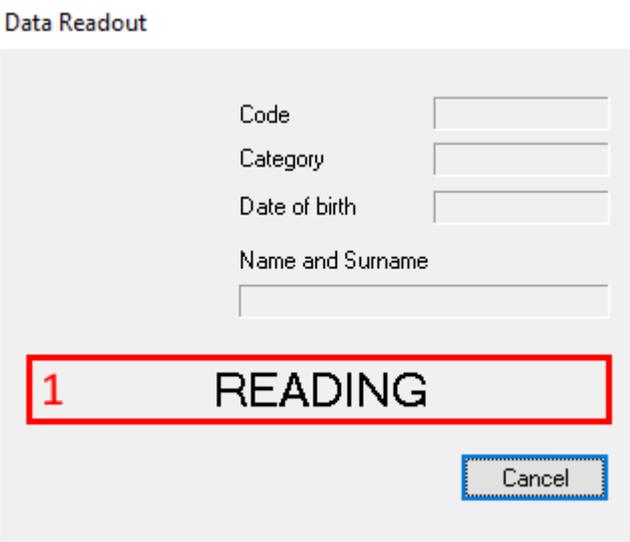
READY

Program Cancel Close

After successfully programming of the dosimeter, click [Close] button.

3.8.2 Read data from the dosimeter

To read data from the dosimeter, the employee must log in, after which the "Data Readout" window will open immediately.



Data Readout

Code
Category
Date of birth
Name and Surname

1 READING

Cancel

where: 1 – data reading status bar.

To read data from the dosimeter, you need to press and hold the dosimeter's MODE button before flashing of the liquid crystal display and, no more in 15 seconds, place it in the reading area so that the infrared port window of the dosimeter is not more than 0.3 m opposite the USB/IrDA adapter window. Data will be read automatically after that. The status bar will display the data read process (READING → SENDING DATA → COMPLETED). Successful procedure of information reading is accompanied by a sound signal of the dosimeter and flashing of the "DATA"

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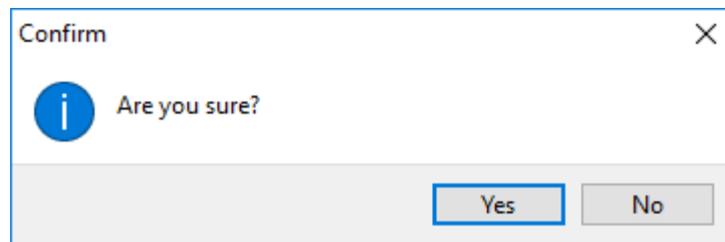
indicator of USB/IrDA adapter. As soon as data from the dosimeter is read, the window displays information about the employee, to whom the dosimeter was assigned.

Close Data Readout window by clicking the [Close] button.

3.8.3 Exit application

To exit the application, do one of the following:

- Click  in the upper right corner of the terminal app window;
- Click on the toolbar icon  ;
- Choose "Exit" from the "File" menu.



To exit the program, press [Yes] or [No] to return.