

# **RadReader**

## **Operating Manual**

## CONTENTS

1	Preface .....	3
2	Purpose of use of the application .....	4
3	Scope of use.....	4
4	Use environment.....	4
5	Installing RadReader .....	5
6	Removing the application.....	8
7	Connecting Bluetooth USB Adapter to your Computer.....	9
8	Setting up RadReader .....	14
9	General description of functionality.....	14
10	Key area of the screen .....	15
10.1	Main window menu.....	16
10.1.1	Open File command .....	16
10.1.2	Save File command .....	17
10.1.3	Save Report(Excel) command.....	17
10.1.4	Print out command .....	18
10.1.5	Enable/Disable Bluetooth.....	19
10.1.6	Allowed connection time indicator .....	19
10.1.7	Change language .....	19
10.1.8	Selecting a COM port.....	19
10.1.9	Reading measurement results .....	20

## **1 Preface**

This Operating Manual is intended for RadReader users and contains information about the functionality and sequence of operations of users with the application. Before working with this application, it is necessary to study the dosimeter operation documents in accordance with the dosimeters used.

## 2 Purpose of use of the application

RadReader application is intended for contactless readout of the results of dosimetric measurements from MKS-05 "TERRA" dosimeters, RKS-01 "STORA-TU" or RKS-01 "STORA-ABG" radiometers (hereinafter referred to as the dosimeters) as a dosimeter's operation protocol. The readout dosimetric information can be viewed on a computer screen, visually monitored, printed out on paper and/or stored on an electronic medium in either the input format or the report format, and converted to Microsoft Excel and saved in a specified ".xls" file. Automated contactless information exchange between the application and the dosimeters when reading information and programming the dosimeters is done via the Bluetooth interface.

## 3 Scope of use

RadReader can be used by companies and organizations that deal with the works on the search for sources of radiation or control of unauthorized movement of radioactive materials, to view the results of dosimetric measurements and operation protocols of MKS-05 "TERRA" dosimeters, RKS-01 "STORA-TU" and RKS-01 "STORA-ABG" radiometers.

## 4 Use environment

The following hardware and software tools are required for the operation of the RadReader application:

- a personal computer;
- a Bluetooth USB adapter based on CSR controller;
- IVT Blue Soleil 5.4.286.0 installed on the computer's operating system from a CD supplied with the dosimeter;
- RadReader installed on the computer's operating system;
- Microsoft Excel for generating reports installed in the computer's operating system.

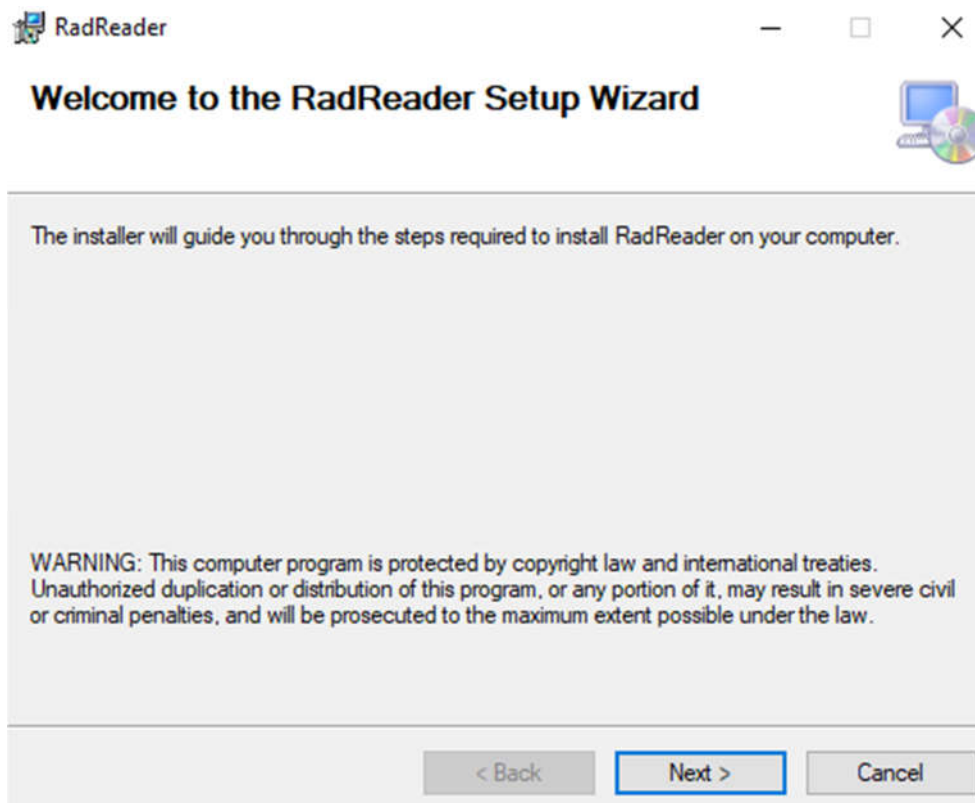
**Important. If you use other Bluetooth USB adapters or versions of IVT Blue Soleil, the dosimeter may not work properly with your personal computer.**

## 5 Installing RadReader

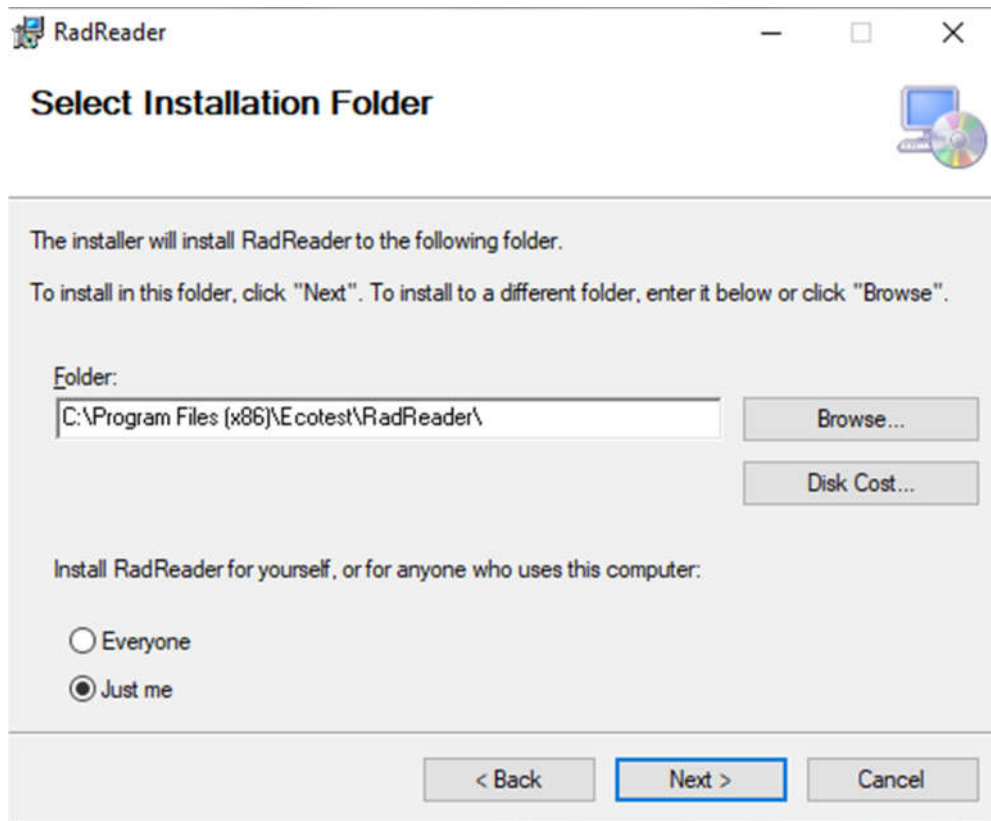
To install RadReader, the user must have the operating system Administrator privileges.

To install the application, you must run Setup.exe file from the RadReader\_Setup directory of the CD that comes with the dosimeter and respond to all installation queries.

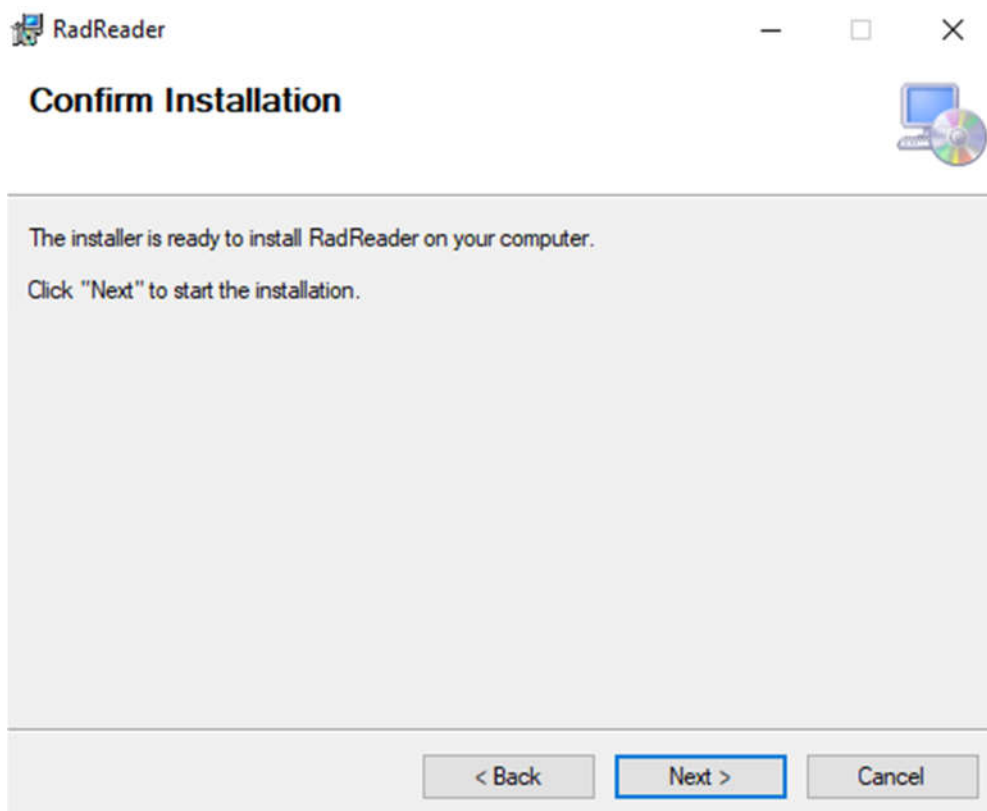
1. In the first window that opens when installing the application, click **Next**



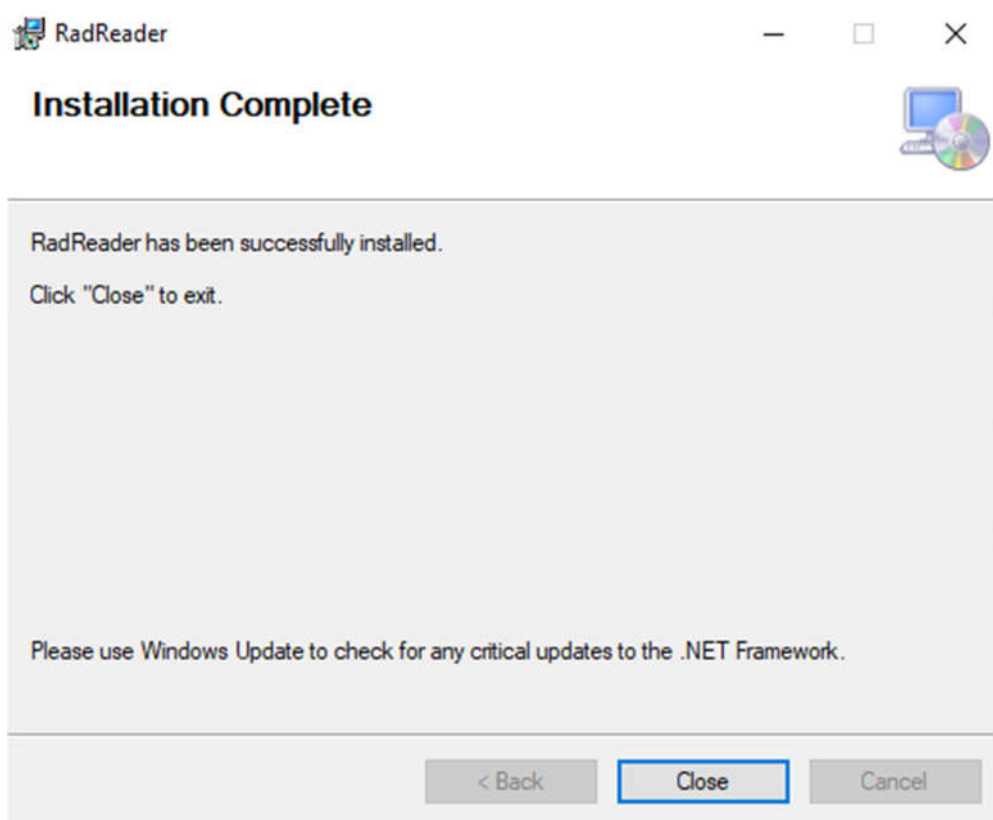
2. In the next window, select the path to the folder to be used by the program. Ecotest folder (C:\Program Files (x86)\Ecotest\RadReader\ ) will be added by default and choose the user that will have access to the application.



3. In the next window, click **Next** to start installing the program.



4. When the installation process is completed, select **Close** in the window, and then the program icon will be added to the desktop.



The language of the application and other regional settings match the operating system settings. The application supports Ukrainian, Russian and English formats of regional standards.

## 6 Removing the application

To uninstall the application, you must remove it in Windows:Control Panel/Programs system. In the list of installed apps, select "RadReader" and click "Uninstall".



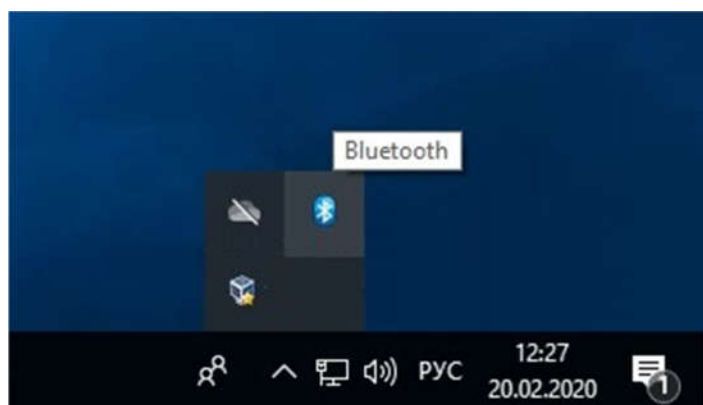
## 7 Connecting Bluetooth USB Adapter to your Computer

The Bluetooth USB adapter connects to one of the USB ports of the computer. Make sure you install IVT BlueSoleil 5.4.286.0 from the CD that comes with the dosimeter.

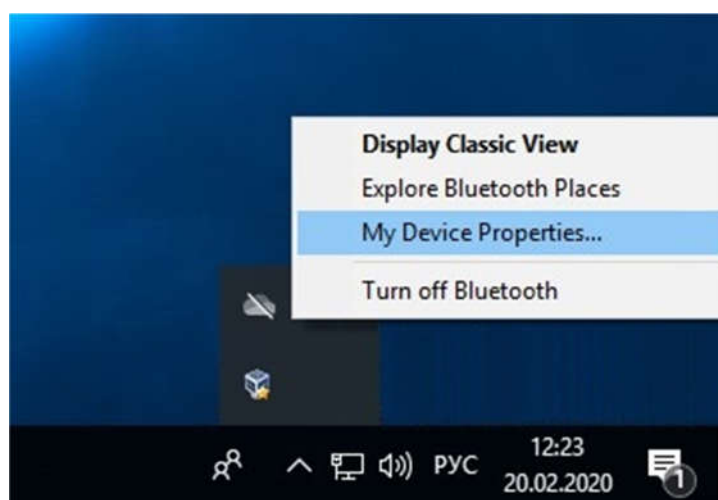
**Important.** If you use other versions of IVT Blue Soleil, the dosimeter may not work properly with your personal computer.

After you have installed IVT BlueSoleil, you need to make the necessary settings. To do this, follow these steps:

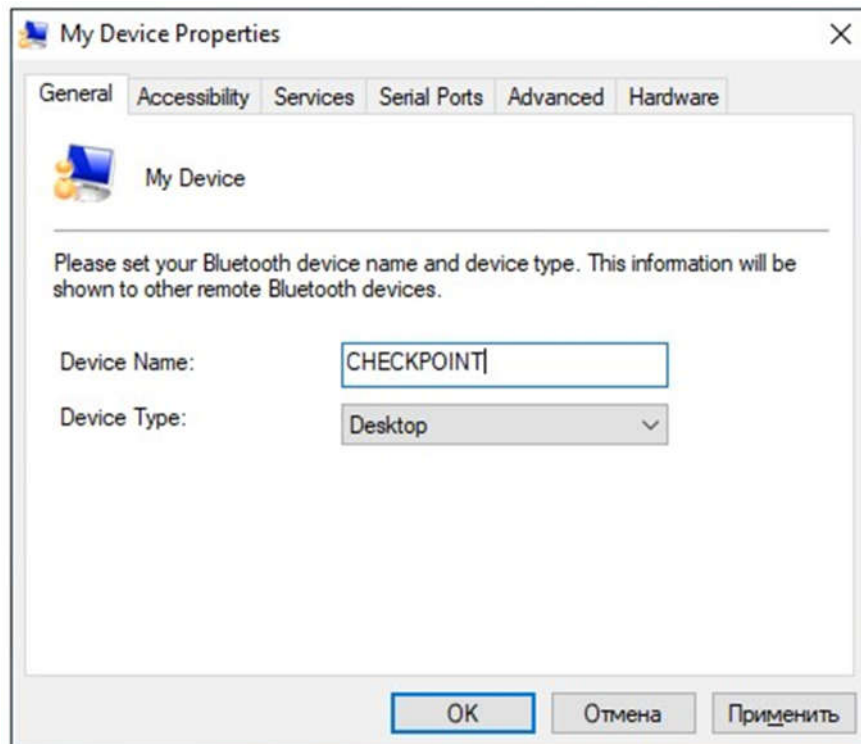
- launch the IVT BlueSoleil program;
- right-click on the Bluetooth icon,



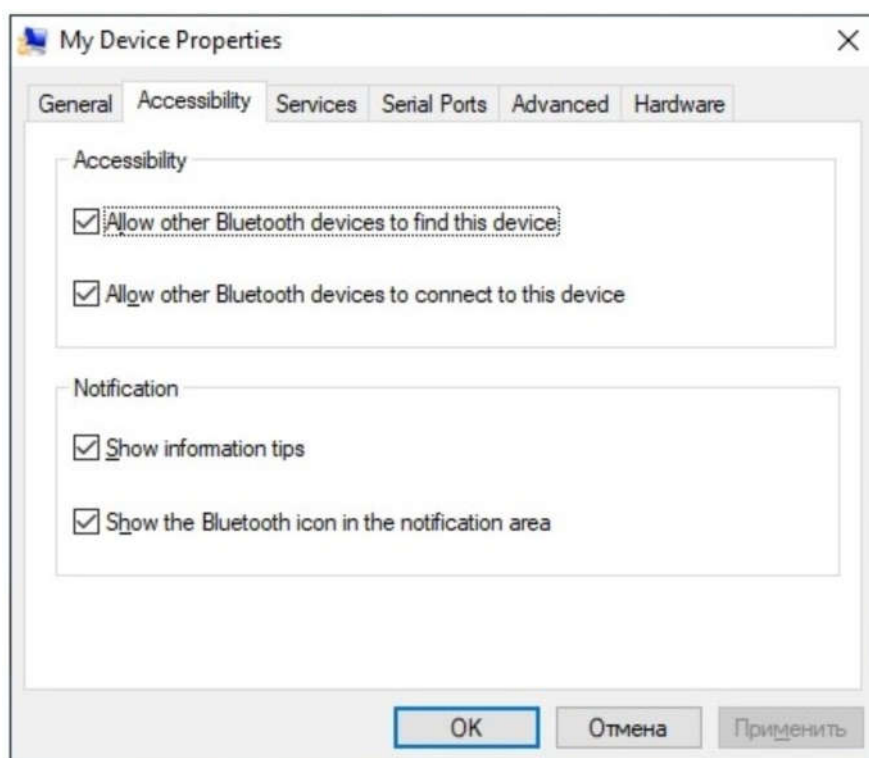
select My Device Properties menu item;



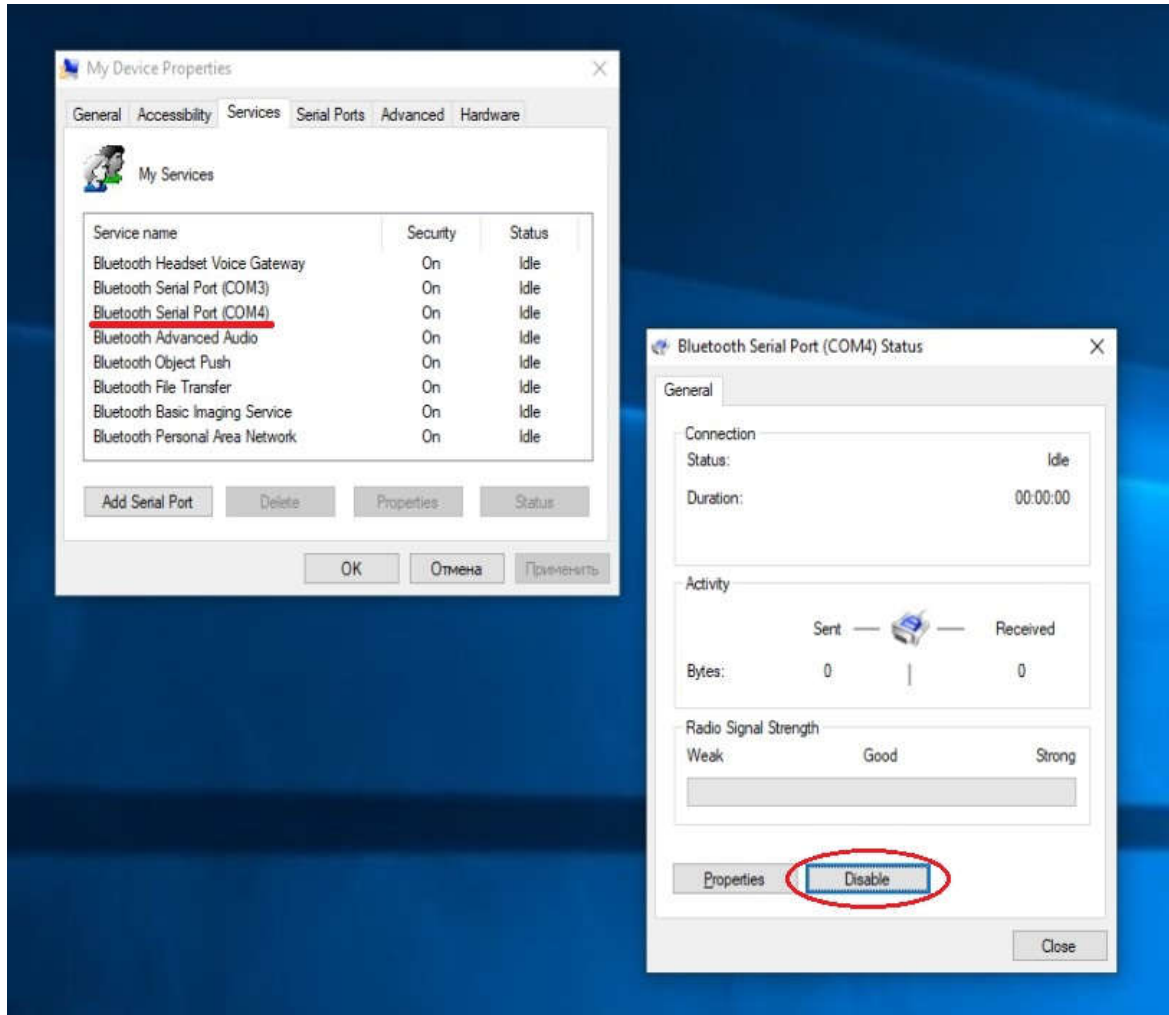
- In the **General** tab, set **Device Name**. The first 10 characters of the device name must be set in **CHECKPOINT**, the rest of the characters may be present at the user's discretion.



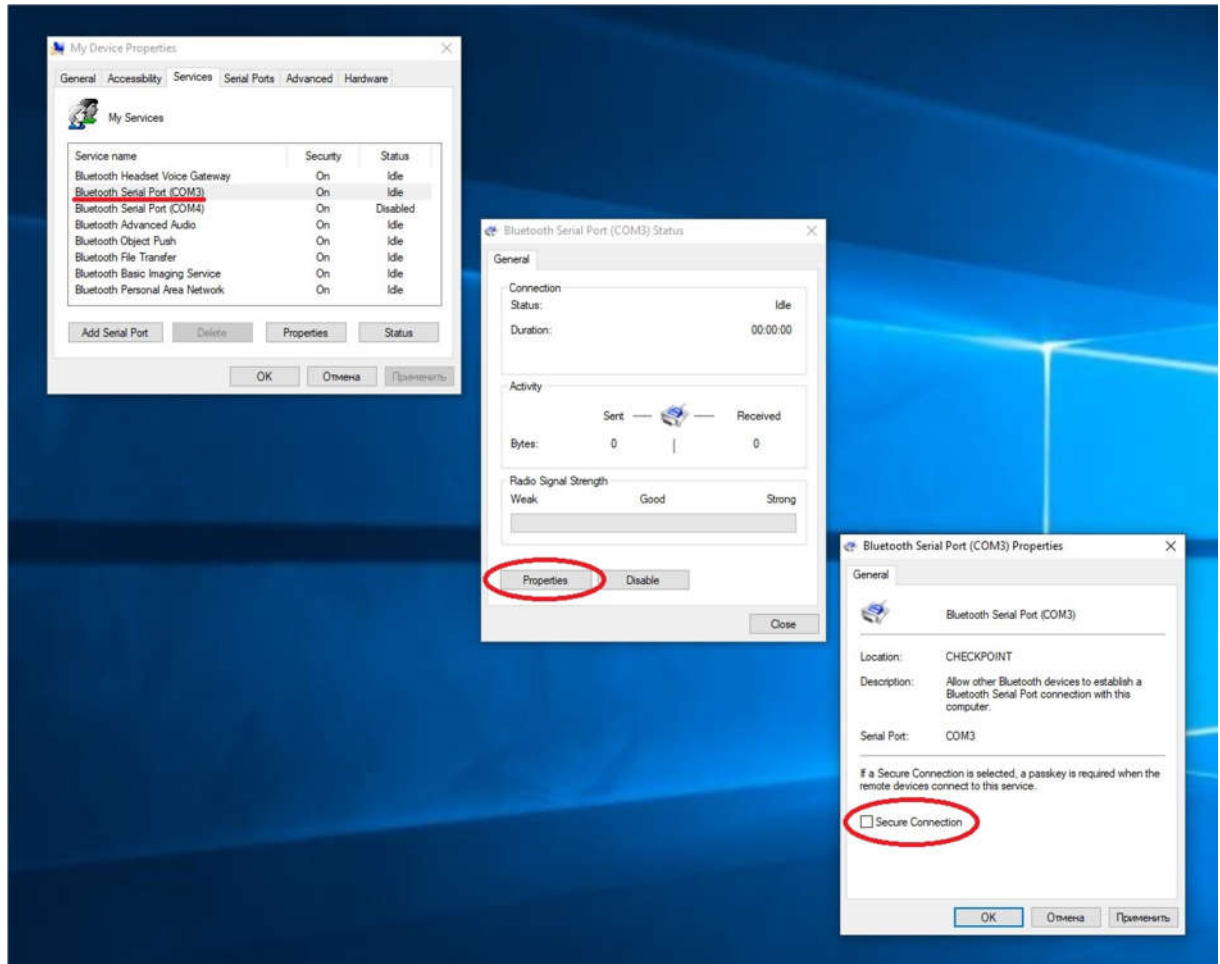
- All options must be selected in the **Accessibility** tab;



- In the **Services** tab, leave only one of the COM ports enabled. To do this, double-click the COM port you want to disconnect. **Bluetooth Serial Port Status** window opens. Disable this COM port with the **Disable** button.



- For the remaining COM port, uncheck **Secure Connection**. To do this, double-click this COM port with the left mouse button. **Bluetooth Serial Port Status** window opens. Use the **Properties** button to open the **Bluetooth Serial Port Properties** window and uncheck **Secure Connection**.



The contents of the other tabs do not need to be changed.

## 8 Setting up RadReader

You need to configure the application before using its functional features. To do this, start the app and in its main window set the number of the COM port, which remained enabled when configuring IVT Blue Soleil, in the "COM port" component. In the "Language" component, you can select the desired language of the application.

## 9 General description of functionality

RadReader allows you to:

- establish an information connection via the Bluetooth interface between the application and the dosimeters;
- read information about the results of dosimetric measurements from the dosimeters;
- save the readings from the dosimeters in the input form for future use;
- load previously stored information in the input form;
- view and print out the read information as a report;
- save the read information in a report format;
- upload previously saved information in a report format to view and print it out later;
- export the read information in Microsoft Excel format to a file with “.xls” extension for further processing of data in Excel;
- print out the reports of operation of MKS-05 "TERRA" dosimeters, RKS-01 "STORA-TU" and RKS-01 "STORA-ABG" radiometers from the program.

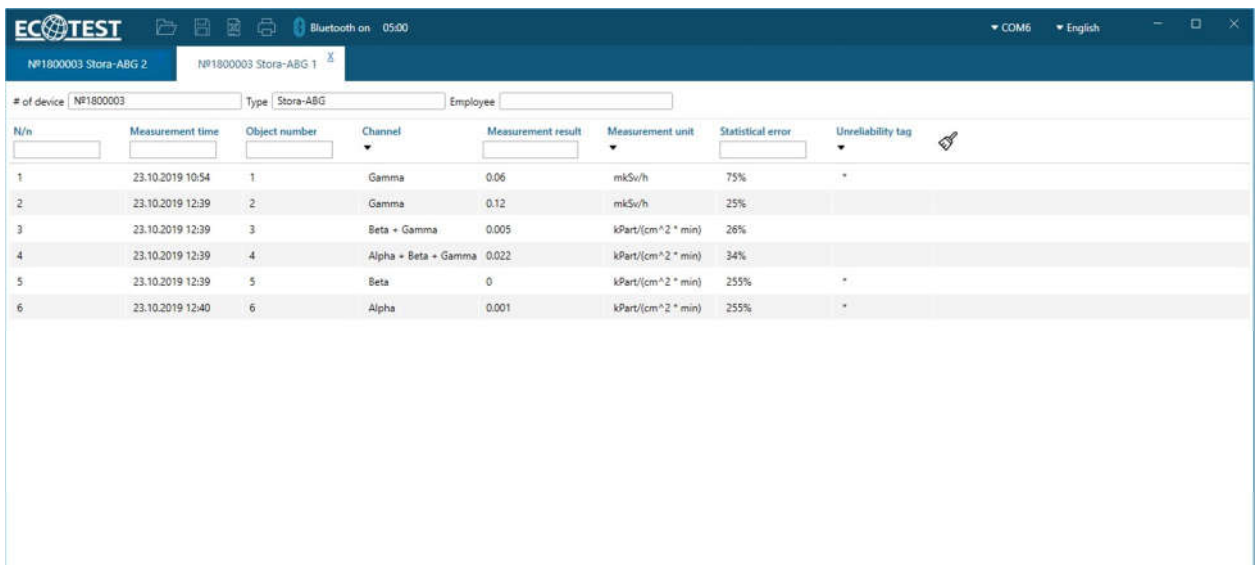
The information connection between the application and the dosimeters is established via the Bluetooth interface. The possibility to communicate between the application and the dosimeter is determined by the application's Bluetooth interface, which may be in the following states:

- Off - in this state it is impossible to communicate and exchange information between the dosimeter and the program;
- On - this is an active state of the Bluetooth interface, in which the connection of the dosimeter is expected to establish information communication.

The user can use the basic functionality of the application in its main window or in the information windows.

## 10 Key area of the screen

When you launch the application, the main window opens, which contains the window's help field and the menu. The help field of the program window consists of the tabs containing information about the results of dosimetric measurements of each dosimeter. Each tab is used to operate a separate dosimeter or a data set from a single dosimeter. A new tab is opened when the file is opened with the Open File button from the menu or when the dosimeter is connected. Each tab contains a table with a dataset from one dosimeter. The tab name contains the type of the dosimeter from which the data was obtained.










The screenshot shows the ECOTEST application window. The title bar includes the ECOTEST logo, system icons (Bluetooth on, 05:00), and window controls (COM6, English). The main interface features a header with fields for '# of device' (N1800003), 'Type' (Stora-ABG), and 'Employee'. Below this is a table with the following columns: N/n, Measurement time, Object number, Channel, Measurement result, Measurement unit, Statistical error, and Unreliability tag. The table contains six rows of data.

N/n	Measurement time	Object number	Channel	Measurement result	Measurement unit	Statistical error	Unreliability tag
1	23.10.2019 10:54	1	Gamma	0.06	mkSv/h	75%	*
2	23.10.2019 12:39	2	Gamma	0.12	mkSv/h	25%	
3	23.10.2019 12:39	3	Beta + Gamma	0.005	kPart/(cm <sup>2</sup> * min)	26%	
4	23.10.2019 12:39	4	Alpha + Beta + Gamma	0.022	kPart/(cm <sup>2</sup> * min)	34%	
5	23.10.2019 12:39	5	Beta	0	kPart/(cm <sup>2</sup> * min)	255%	*
6	23.10.2019 12:40	6	Alpha	0.001	kPart/(cm <sup>2</sup> * min)	255%	*

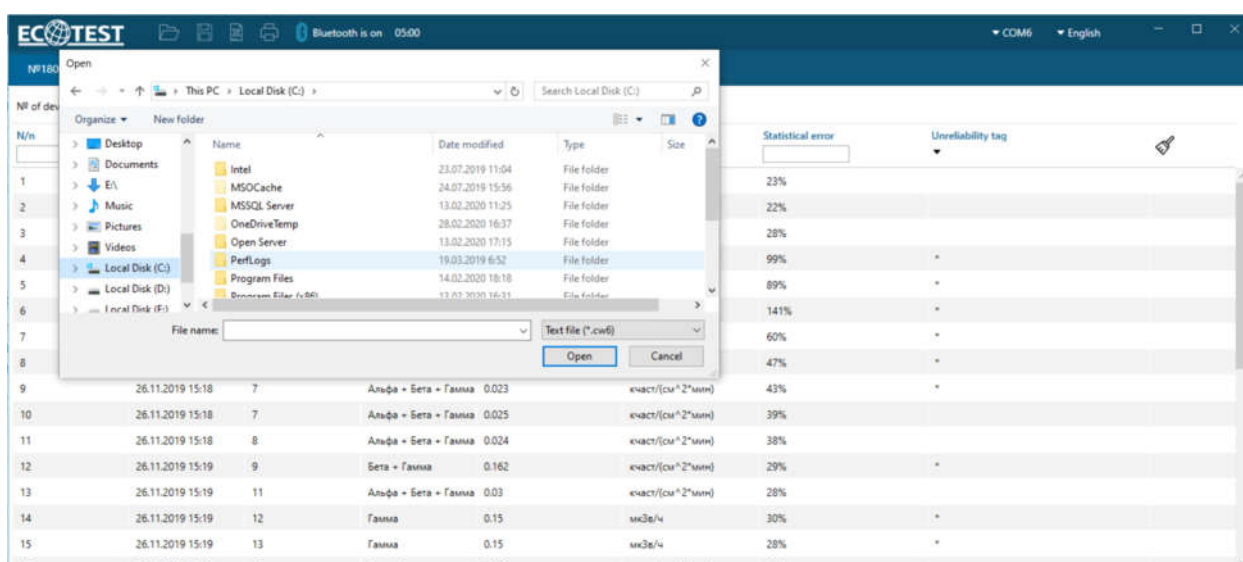
## 10.1 Main window menu

The main window menu contains the commands that you can run in the main window. They include:

- open file ;
- save file ;
- save report (Excel) ;
- print out report ;
- enable/disable Bluetooth  Bluetooth **виключено** 05:00;
- change language  Українська;
- Select COM port  COM3.

### 10.1.1 Open File command

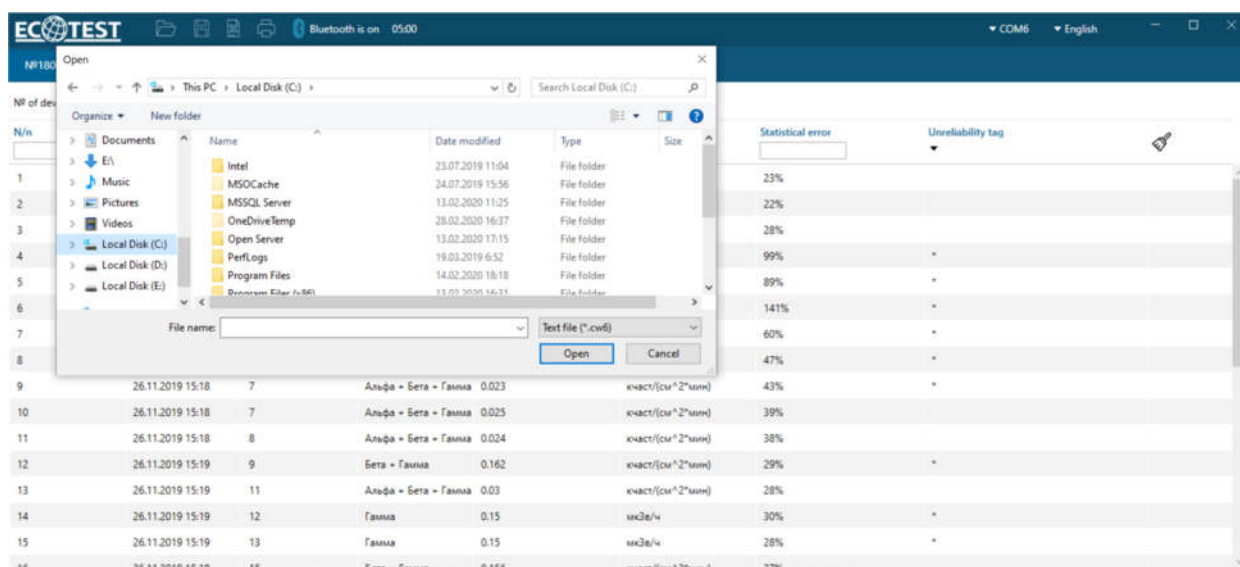
**Open File** command is intended to open files with \* .cw6 extension to view data and further use them in preparing programming parameters and modes. When you select a file, a new tab is added to the main window where the data from the file is displayed.





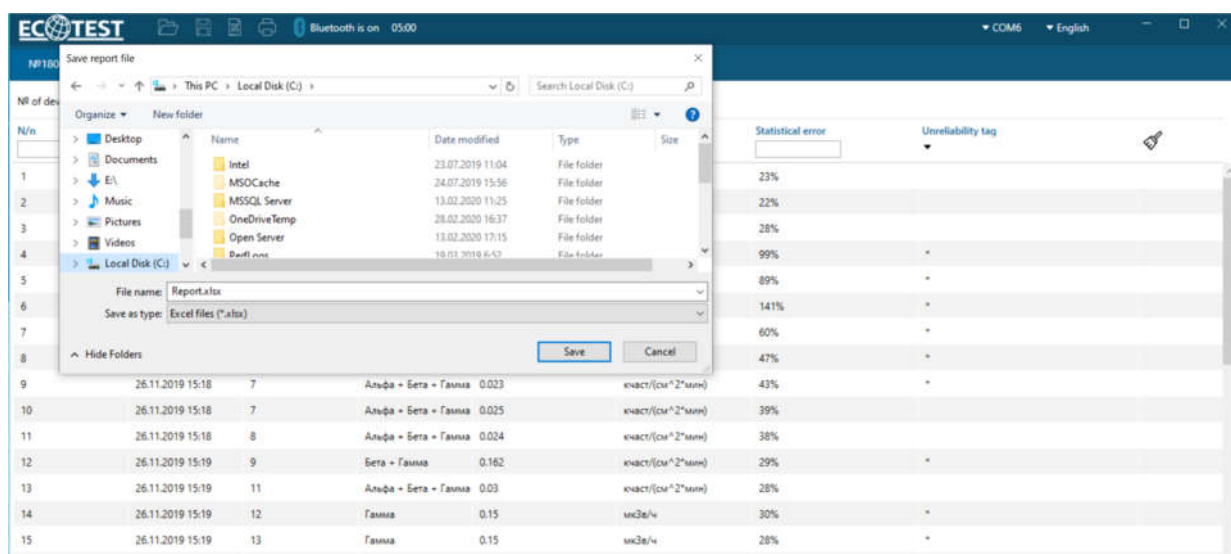
## 10.1.2 Save File command

**Save File** command is intended to store data in a file with an extension on an external medium for further use. Clicking the "Save" button the user should specify the file name and file location on the PC.



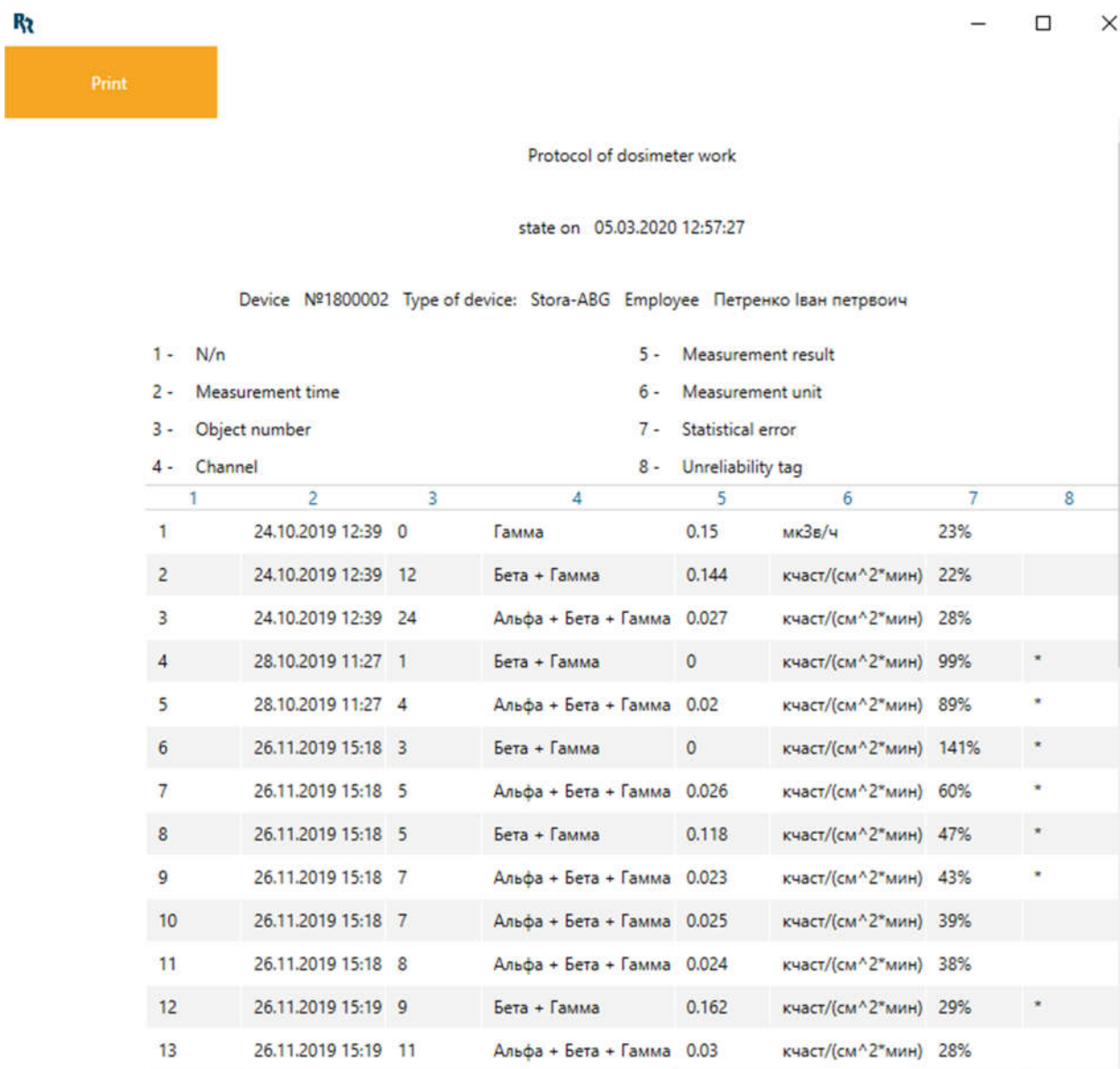
## 10.1.3 Save Report(Excel) command

**Save Report(Excel)** command is intended to save data to an Excel report format. Clicking this button will generate an Excel file with a measurement table of the active tab, taking into account the existing filters and sorting (record number, dosimeter type, dosimeter number, object number, measurement time and other data).



## 10.1.4 Print out command

**Print out** command is intended to generate the dosimeter's operation protocol. The user can view the prepared protocol and by clicking on the "Print out" button, the file will be sent to the device for printing. At the top part of the dosimeter's operation protocol, there is a "legend" with designations and explanations for each designation. Each entry in the table describes one event that took place and is recorded in the dosimeter's memory at the specified time. Vertical columns of the table identify specific events. The presence of a particular event at a certain time is indicated by a separate entry in the table marking the event in the cell at the intersection of the timeline and column of the event.



Print

Protocol of dosimeter work

state on 05.03.2020 12:57:27

Device №1800002 Type of device: Stora-ABG Employee Петренко Иван петровиц

1 - N/n  
2 - Measurement time  
3 - Object number  
4 - Channel  
5 - Measurement result  
6 - Measurement unit  
7 - Statistical error  
8 - Unreliability tag

1	2	3	4	5	6	7	8
1	24.10.2019 12:39	0	Гамма	0.15	мкЗв/ч	23%	
2	24.10.2019 12:39	12	Бета + Гамма	0.144	кчаст/(см <sup>2</sup> *мин)	22%	
3	24.10.2019 12:39	24	Альфа + Бета + Гамма	0.027	кчаст/(см <sup>2</sup> *мин)	28%	
4	28.10.2019 11:27	1	Бета + Гамма	0	кчаст/(см <sup>2</sup> *мин)	99%	*
5	28.10.2019 11:27	4	Альфа + Бета + Гамма	0.02	кчаст/(см <sup>2</sup> *мин)	89%	*
6	26.11.2019 15:18	3	Бета + Гамма	0	кчаст/(см <sup>2</sup> *мин)	141%	*
7	26.11.2019 15:18	5	Альфа + Бета + Гамма	0.026	кчаст/(см <sup>2</sup> *мин)	60%	*
8	26.11.2019 15:18	5	Бета + Гамма	0.118	кчаст/(см <sup>2</sup> *мин)	47%	*
9	26.11.2019 15:18	7	Альфа + Бета + Гамма	0.023	кчаст/(см <sup>2</sup> *мин)	43%	*
10	26.11.2019 15:18	7	Альфа + Бета + Гамма	0.025	кчаст/(см <sup>2</sup> *мин)	39%	
11	26.11.2019 15:18	8	Альфа + Бета + Гамма	0.024	кчаст/(см <sup>2</sup> *мин)	38%	
12	26.11.2019 15:19	9	Бета + Гамма	0.162	кчаст/(см <sup>2</sup> *мин)	29%	*
13	26.11.2019 15:19	11	Альфа + Бета + Гамма	0.03	кчаст/(см <sup>2</sup> *мин)	28%	

### **10.1.5 Enable/Disable Bluetooth**

There are two types of marks used to identify Bluetooth status (on/off) and the corresponding "Bluetooth on/off" text message.

By clicking on the Bluetooth icon, the Bluetooth interface of the application activates/deactivates. The Bluetooth status indicator shows "Bluetooth on". In this state of the Bluetooth interface, the application is ready to establish information connection with MKS-05 "TERRA" dosimeter, RKS-01 "STORA-TU" and RKS-01 "STORA-ABG" radiometer. If you turn off Bluetooth, the corresponding message "Bluetooth off" will be displayed and the application will not be ready to connect to the dosimeters.

### **10.1.6 Allowed connection time indicator**

The allowed connection time indicator is intended to display the time allowed in the program to communicate between the application and the dosimeter. When the dosimeter is connecting to this indicator, a countdown of 5 minutes begins on this indicator. This countdown shows the allowed connection time, after which the application will automatically disconnect with the dosimeter.

### **10.1.7 Change language**

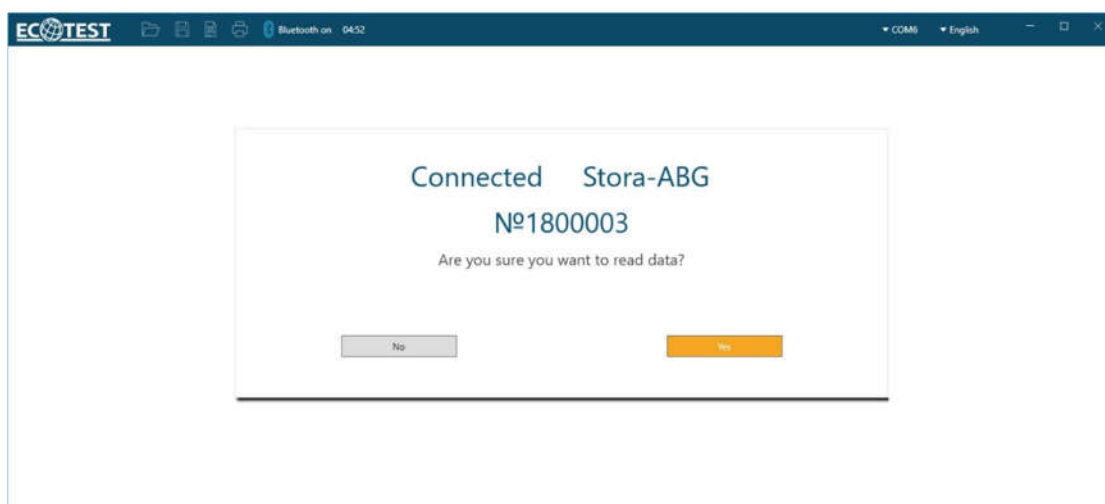
At the top right part of the program window, you can select the language of the user interface. The program will work using the language you have chosen.

### **10.1.8 Selecting a COM port**

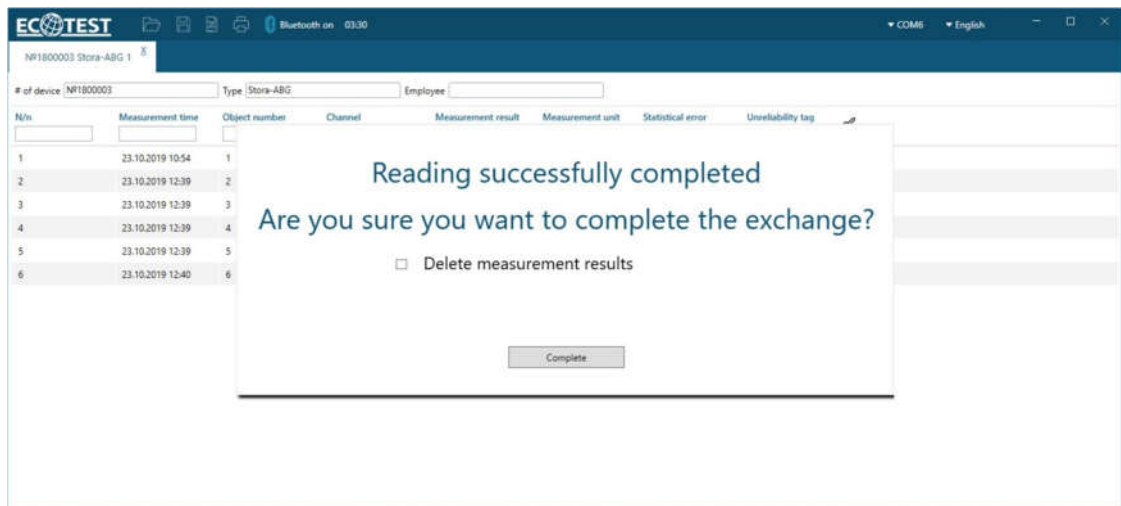
In the main window of the application in the "COM port" component, the user can choose the COM port number, which remained activated during IVT Blue Soleil setup, to establish a connection with the dosimeter.

### 10.1.9 Reading measurement results

When you press the Bluetooth button, the application expects the dosimeter to be connected via the Bluetooth interface. When the dosimeter is connected, an information window with the number and type of the dosimeter and the question "Are you sure you want to read data?" is displayed, and a 5-minute countdown starts. In case of refusal of reading or if 5 minutes are over and the user made no choice, the program terminates the dosimeter exchange without erasing the data on the device.



When the user confirms the reading, the data is exchanged. When the reading is complete, a window will open with the dialog "Reading successfully completed. Are you sure you want to complete the exchange?", as well as two check-boxes: "Delete measurement results" and "Delete dose and accumulation time". According to the user's choice, the data exchange is completed and the corresponding function takes place.



When the data transfer from the dosimeter is complete, a new tab is added to the program window, showing the number and type of the dosimeter and the measurement results.

The screenshot shows the ECOTEST software interface with a new tab for "NP1800003 Stora-ABG 2". The table displays measurement results for six objects. The columns are: N/n, Measurement time, Object number, Channel, Measurement result, Measurement unit, Statistical error, and Unreliability tag.

N/n	Measurement time	Object number	Channel	Measurement result	Measurement unit	Statistical error	Unreliability tag
1	23.10.2019 10:54	1	Gamma	0.06	mSv/h	75%	*
2	23.10.2019 12:39	2	Gamma	0.12	mSv/h	25%	
3	23.10.2019 12:39	3	Beta + Gamma	0.005	kPart/(cm <sup>2</sup> * min)	26%	
4	23.10.2019 12:39	4	Alpha + Beta + Gamma	0.022	kPart/(cm <sup>2</sup> * min)	34%	
5	23.10.2019 12:39	5	Beta	0	kPart/(cm <sup>2</sup> * min)	255%	*
6	23.10.2019 12:40	6	Alpha	0.001	kPart/(cm <sup>2</sup> * min)	255%	*

The user can close the tab, this will open a dialog box to confirm the action.

