

“RadMonitor” software

Operating manual

1 Purpose of use

The RadMonitor software (hereafter called the SW) is intended to receive measurement results of ambient dose equivalent rate (hereafter called DER) from both the BDBG-09 detecting units and IT-09 data panels, and represent these data on the display as well as store them on a PC's hard disk drive.

2 Use of the RadMonitor SW

The SW functions on the IBM-compatible personal computer (PC) with the installed Windows XP or Windows 7 operating systems. A sound card and acoustic system is required for audio signals generation.

The SW ensures simultaneous operation maximum with 24 BDBG-09 detecting units and/or IT-09 data panels.

Connection of the BDBG-09 detecting units and IT-09 data panels to the PC, as well as power supply of the BDBG-09 detecting units, is done over RPII-6BD interface units. A single RPII-6BD interface unit facilitates connection to the PC with six BDBG-09 detecting units or IT-09 data panels. The SW ensures simultaneous operation maximum with four RPII-6BD interface units. Each RPII-6BD interface unit is connected to the PC via the USB interface.

3 Functionalities

The SW provides the possibility:

- to receive gamma radiation DER measurement results from the BDBG-09 detecting units or IT-09 data panels;
- to receive serial numbers of the BDBG-09 detecting units or IT-09 data panels;
- to receive results of self-testing from the BDBG-09 or IT-09 data panels;
- to set time and alarm threshold levels of the IT-09 data panels;
- to show information from the BDBG-09 detecting units and IT-09 data panels on the PC display and save data with the defined saving interval on the hard disk drive of the PC;
- to set independent alarm threshold levels of the PC for each BDBG-09 detecting unit or IT-09 data panel;
- to generate audio and visual alarm signals when the alarm threshold level of the PC is exceeded, as well as save date and time of exceeding on the PC's hard disk drive;
- to generate audio and visual signals in case of link disconnection with the BDBG-09 detecting units and/or IT-09 data panels, as well as save date and time of link disconnection and its restoration on the PC's hard disk drive;
- to generate audio and visual signals when the BDBG-09 detecting units and/or IT-09 data panels are at failure, as well as save date and time to the PC's hard disk drive;

4 The SW includes:

- RadMonitor program (RadMonitor.exe, Sound108.wav, SoundErr.wav files) that performs the main SW functions;
- Configurator program (configurator.exe file) intended for the RadMonitor program settings;
- USB serial device driver and USB serial port driver.

5 Installation of the SW

You must have administrator rights to install this SW.

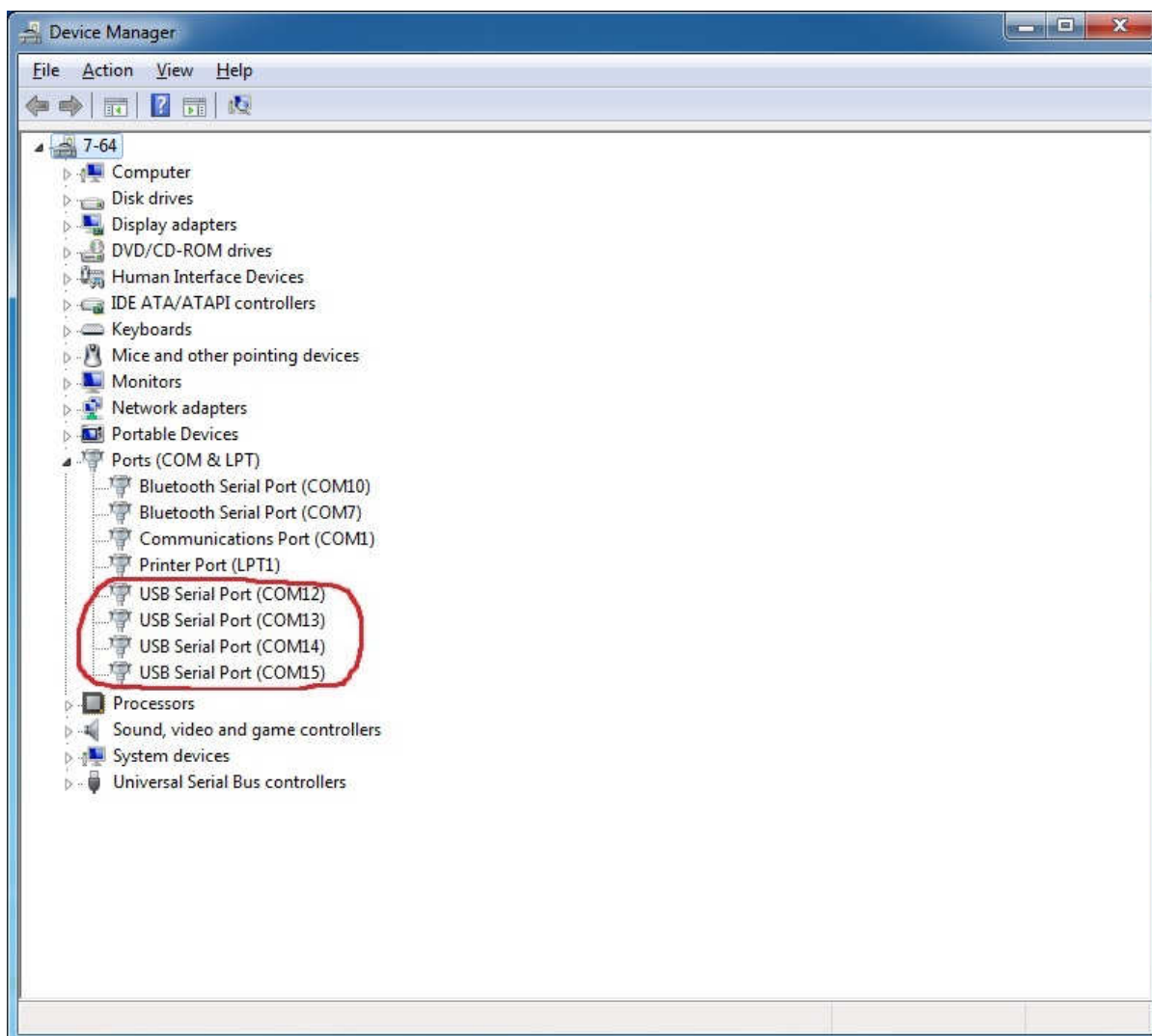
5.1 Installing USB serial device driver and USB serial port driver

Note: Installation of the drivers on the PC is needed only once. If the drivers were previously installed, e. g. during installation of any other software, in fact, this procedure is no longer required. You just need to set the "Latency Timer" option as described below.

To install the drivers while the interface unit is disconnected from the PC, run the CDMXXXXX_Setup.exe file from the “Drivers” folder on the installation disk and wait until the installation is complete (XXXXXX – driver’s serial number). Future Technology Devices International Ltd is a driver manufacturer. Find more about the driver and download the latest driver’s version at the manufacturer’s driver web-site: <http://www.ftdichip.com/>.

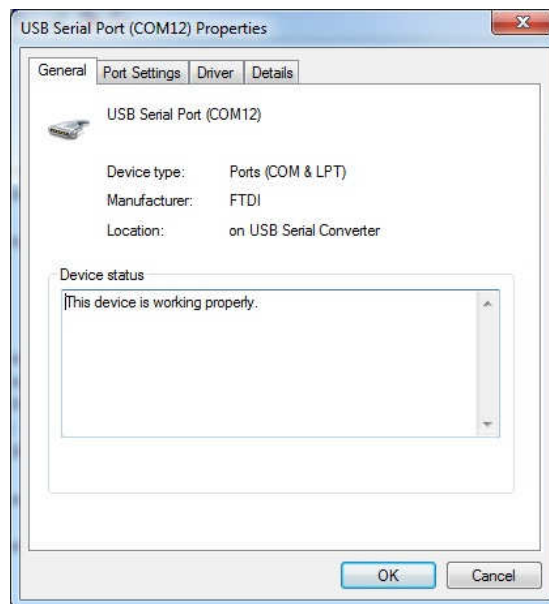
After installing the drivers, connect the interface unit to the PC, and plug the AC adapter of the interface unit into the 100...220 V main power.

As a result, the “USB Serial Port” device will be listed in the “Ports (COM & LPT)” section of the “Device Manager” tab. The number of such devices is equal to the number of connected interface units.

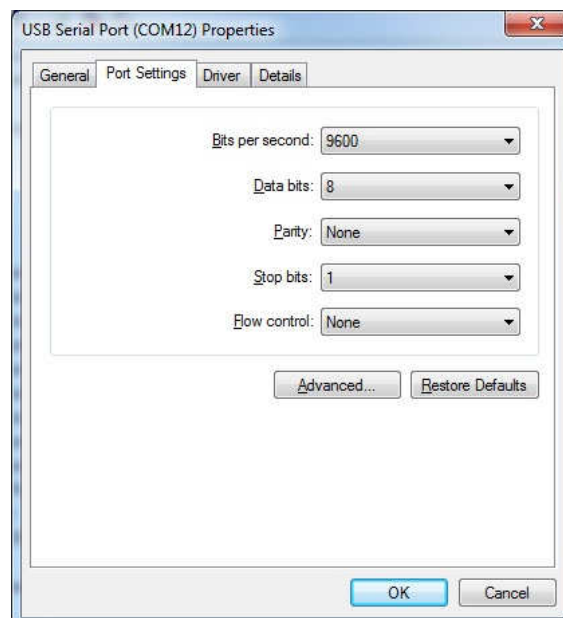


To enable proper performance of the RadMonitor.exe program, set the 1 msec (minimum value) in the “Latency Timer” option of the USB serial port. To do this:

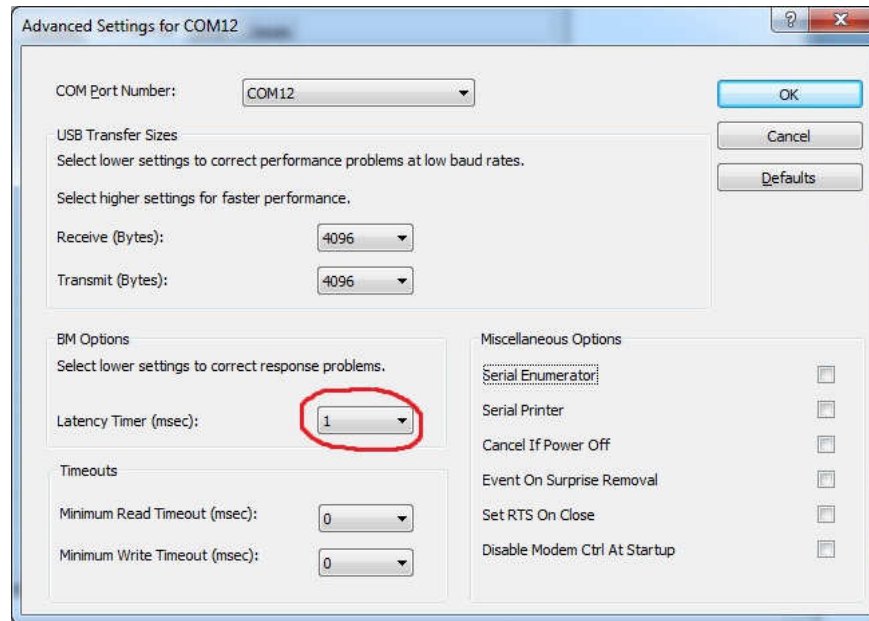
- open the “Properties” window: USB Serial Port(COM__);



- select the “Port Settings” tab;



- click the “Advanced” button;



- change the “Latency Timer” value (msec);
- click the “Ok” button.

5.2 Installing the RadMonitor SW

To install the RadMonitor SW, run the Setup.exe file from the RadMonitor folder on the installation disk, and answering to all installer’s questions, wait until the installation is complete. All program files are copied to the directory:

<bootdrive>:\Program Files\SVC\ RadMonitor,
or to the catalog specified during installation.

5.3 Removing the RadMonitor SW installation

To remove (uninstall) the RadMonitor SW, open the “Start” menu and choose
Control panel -> Add or Remove Programs.

In the list of installed programs, select the “RadMonitor” program and click the “**Uninstall**” button.

6 SW operation

6.1 General information

For proper SW operation and performance:

- the interface unit and the PC must be grounded;
- the BDBG-09 detecting units and/or IT-09 data panels should be connected to the interface unit;
- the interface unit must be connected to the PC, and AC adapters of the interface unit – to the 100...220 V main power.

A steadily glowing “Vin” LED is an indication of supply voltage of the interface unit. The active mode (after supplying power to the detecting units the interface unit is ready to get started) is represented by the steadily glowing “Active” LED. Blinking of the “Tx” and “Rx” LEDs is an indication of data communications between the interface unit and detecting units and/or data panels.

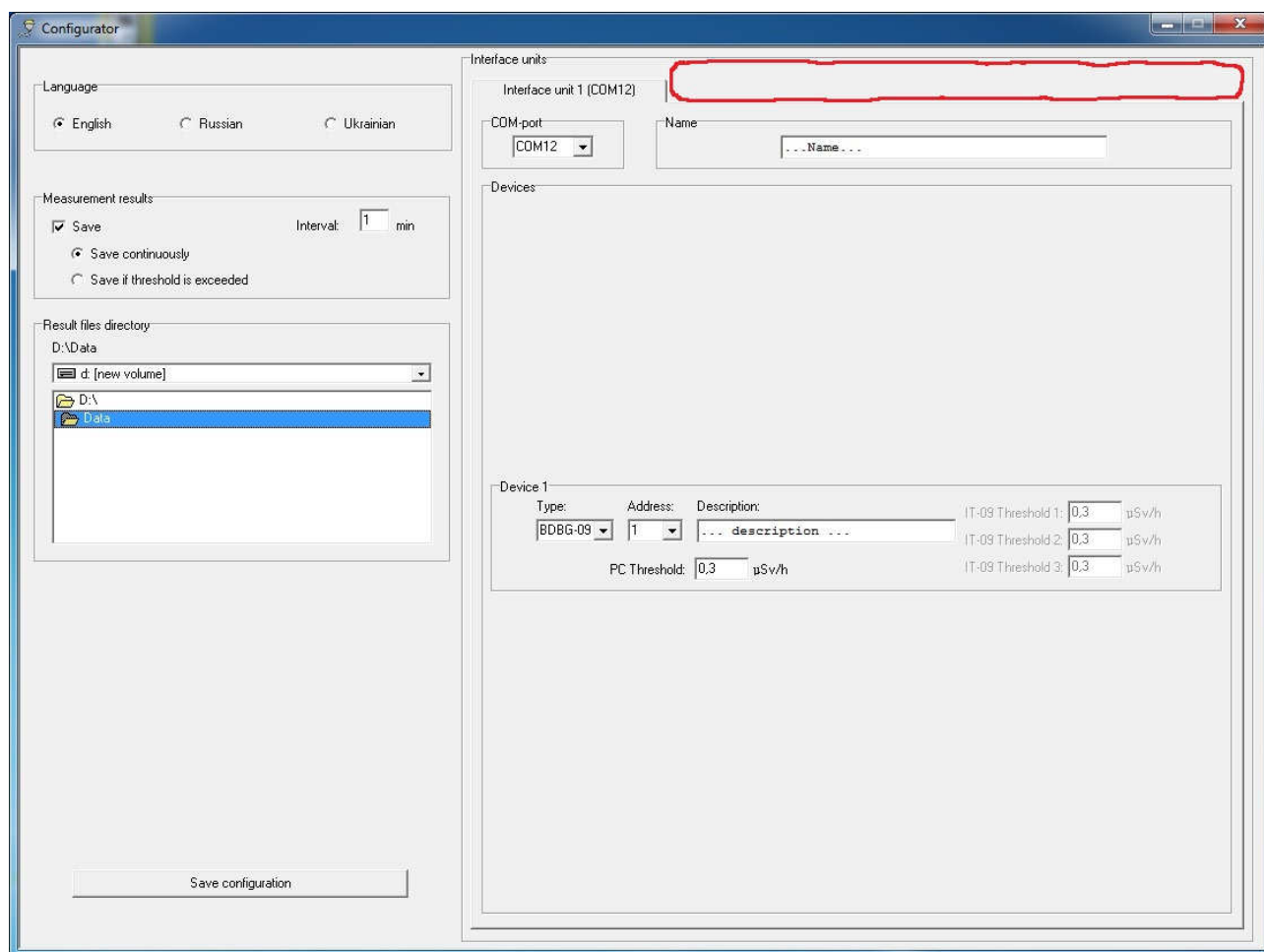
6.2 The Configurator program (configurator.exe).

Note: You may save output results from the Configurator program only if it is run with administrator rights.

Before beginning the operation with the SW, launch the Configurator program (configurator.exe), create configuration for operation of the RadMonitor program (RadMonitor.exe). Enter the following data in the fields of the Configurator program window:

- interface language;
- necessity of saving measurement results of gamma radiation DER, events of threshold levels exceeding and device failures;
- saving interval;
- path to a folder required for saving these data.

The Configurator program window is shown below:



Then, under “Interface units” you should create tabs for each RPII-6BD interface unit connected to the PC. To add a new tab, enter the context menu by clicking with the right mouse button (called right-click) in the upper-right corner of the “Interface units” area to the right of the headings of the tabs. This place is marked in red as shown in the screenshot. To remove the tab, if necessary, enter the context menu by right-clicking the heading of it.

For each interface unit you should specify:

- virtual COM Port to which the RPII-6BD interface unit is connected;
- name of the interface unit.

The interface unit name will be further displayed in the window of the RadMonitor program, as well as saved in the headings of files that contain gamma radiation DER measurement results for convenient identification of the interface unit, as well as detecting units and/or data panels (thereafter called the devices) which are connected to it.

To create the “Device” field for each device that is connected to the specific interface unit, right-click in the “Device” area to see the context menu. To remove the “Device” field, if necessary, right-click it, and then point to an appropriate command on the context menu.

Enter the following information in each “Device” field:

- Type— type of the device: BDBG-09 or IT-09;
- Address – address of the device for identifying it among all other devices that are connected to a single interface unit (thus, multiple devices with identical addresses cannot be connected to the same interface unit);
- Description – device description will be further displayed in the window of the RadMonitor.exe program as well as saved in the headings of files that contain gamma radiation DER measurement results for convenient identification of the device;

- PC Threshold – gamma radiation DER threshold level, which when exceeded is followed by audio and visual alarm signals generated by the PC;
- IT-09 Threshold 1... IT-09 Threshold 3 – gamma radiation DER threshold levels, which when exceeded are followed by audio and visual alarm signals generated by the IT-09 data panel. The values of “IT-09 Threshold 1... IT-09 Threshold 3” fields are sent to the IT-09 data panel when the RadMonitor program is started.

After configuration is complete, select an appropriate button to save it. The configuration will be recorded to the registry. Now you can run and use the RadMonitor program.

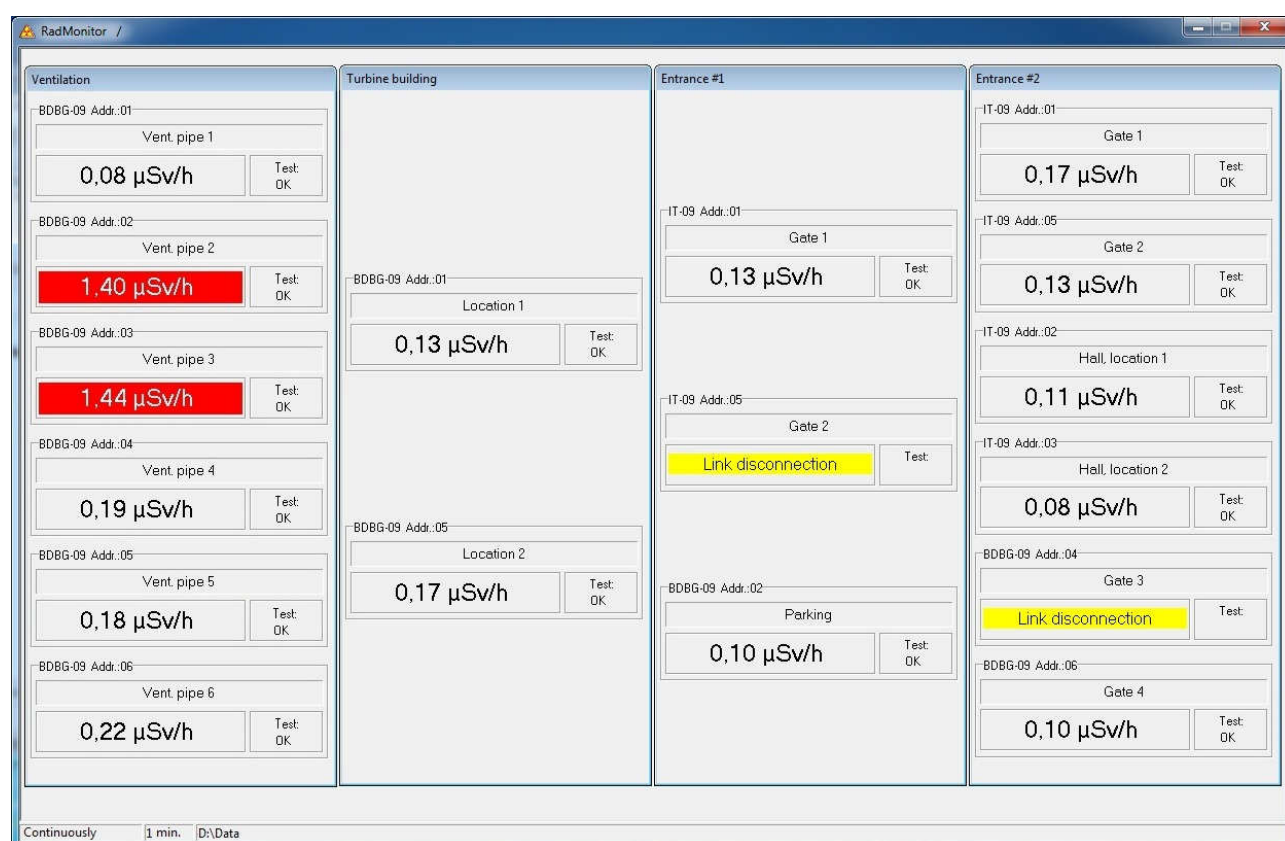
Note: To save the created configuration, you must run the Configurator program with administrator rights.

6.3 The RadMonitor program (RadMonitor.exe).

The RadMonitor program operates properly with the user rights. The full access to the folder, where measurement results are to be saved, must be granted.

When you start up the RadMonitor program, it begins to perform data communications between BDBG-09 detecting units and/or IT-09 data panels (devices) that are connected to the PC over the interface unit. Program startup also provides settings of the PC system time and three gamma radiation DER threshold levels for IT-09 data panels.

The main window of the RadMonitor program, which displays data received from the connected devices, is depicted as follows:



To get more detailed information from the device, right-click the field of this device, and then click “Full information” on the context menu.

The “Full information” window is shown below:

The screenshot shows a window titled "Full info" with a close button in the top right corner. The window contains a form with the following fields and values:

Interface unit:	Entrance #2		
Port:	COM12	USB-emulation:	
Device:	IT-09	Address:	01
Serial number:	0308123		
Description:	Gate 1		
PC Threshold:	0.3 $\mu\text{Sv/h}$		
IT-09 Threshold 1:	0 $\mu\text{Sv/h}$		
IT-09 Threshold 2:	1 $\mu\text{Sv/h}$		
IT-09 Threshold 3:	5 $\mu\text{Sv/h}$		
DER:	0,09 $\mu\text{Sv/h}$		
Max. statistical error:	19%		
Self testing result:	OK		

Measurement results and emergency situations are saved on the PC's hard disk drive in text files. Previously saved measurement results can be viewed using different programs intended for viewing and editing text files (e.g. notepad). A separate file is created for each device during the day. Data in those files is stored throughout the last twenty four hours. When the 24-hour period is over, operation with current files stops. Then new files are created, and it is possible to work with them.

File name is depicted as follows: 2012_08_21.1_01,
where

- 2012_08_21 – file creation date;
- 1 – serial number of an interface unit;
- 01 – address of a device.

Example of that file (2012_08_21.1_01) is described below:

Interface unit: Ventilation
 Device: BDBG-09
 Addr.: 01
 Description: Vent. pipe 1

2012.08.21 15:48:41 Start-up
 2012.08.21 15:48:41 Serial number received: 0308123

Date	Time	DER	Max. stat. error	Tests results	Threshold	Status
2012.08.21	15:48:42	0,08 µSv/h	18%	OK	0,3 µSv/h	
2012.08.21	15:49:42	0,09 µSv/h	18%	OK	0,3 µSv/h	
2012.08.21	15:50:42	0,09 µSv/h	18%	OK	0,3 µSv/h	
2012.08.21	15:51:42	0,09 µSv/h	18%	OK	0,3 µSv/h	
2012.08.21	15:52:42	0,09 µSv/h	18%	OK	0,3 µSv/h	
2012.08.21	15:53:42	0,08 µSv/h	19%	OK	0,3 µSv/h	
2012.08.21	15:54:42	0,08 µSv/h	19%	OK	0,3 µSv/h	
2012.08.21	15:55:42	0,08 µSv/h	19%	OK	0,3 µSv/h	
2012.08.21	15:56:42	0,08 µSv/h	19%	OK	0,3 µSv/h	
2012.08.21	15:57:42	0,09 µSv/h	18%	OK	0,3 µSv/h	
2012.08.21	15:58:42	0,08 µSv/h	19%	OK	0,3 µSv/h	
2012.08.21	15:59:42	0,09 µSv/h	19%	OK	0,3 µSv/h	
2012.08.21	16:00:41	0,10 µSv/h	17%	OK	0,3 µSv/h	
2012.08.21	16:01:42	0,10 µSv/h	18%	OK	0,3 µSv/h	
2012.08.21	16:02:29	* 1,88 µSv/h	89%	OK	0,3 µSv/h	EXCEEDING
2012.08.21	16:03:30	2,19 µSv/h	9%	OK	0,3 µSv/h	EXCEEDING
2012.08.21	16:04:30	2,21 µSv/h	10%	OK	0,3 µSv/h	EXCEEDING
2012.08.21	16:05:30	* 0,07 µSv/h	89%	OK	0,3 µSv/h	
2012.08.21	16:06:30	* 0,07 µSv/h	45%	OK	0,3 µSv/h	
2012.08.21	16:07:30	0,10 µSv/h	29%	OK	0,3 µSv/h	
2012.08.21	16:08:12	Close-down				