

January 16, 2023

## **OPERATING INSTRUCTIONS**

1. Due to the possibility of **sudden and unpredictable failure/interruption** of the X-RAD X-ray lamp, it is necessary to **be physically present at the X-RAD** irradiator **during the entire 20-minute preheating process**, especially towards the end (from the remaining approx. 400 seconds), as well as **during the actual X-ray irradiation** (regardless of the predefined length of the irradiation program), and to closely **monitor** the time changes (or reports) **on the screen**.

2. In the event of **a sudden failure** of the X-ray lamp, it is necessary to **react immediately** (within a few seconds):

i) tap the **blue EXIT button** on the touchscreen;

ii) tap the **green X-RAYS START button** to restart the X-ray lamp function.

In this case, the software of the computer built into the X-RAD **stores the already irradiated time** (seconds) and after restarting the device, the next ongoing irradiation time is **added** until the desired irradiation duration, pre-defined in the irradiation program, is reached.

3. **WARNING**: If the X-RAD is restarted **after a longer period of time** after a recorded failure of the X-ray lamp function (after several minutes), the **recorded time before the failure is cancelled!** After the restart, the software on the computer in the X-RAD only records the new irradiation time **incorrectly** - again **from the beginning of 0 seconds!**

i) In the case of X-ray irradiation of biological material, this is an **unacceptable error** - it increases the absorbed dose!

ii) In the case of X-ray tube warm-up, this is an **acceptable extension of the preheating process**.

4. In the event that none of the trained X-RAD users plan to perform X-ray irradiation for more consecutive days - i.e., according to the records in the Calpendo reservation system, the X-RAD should be out of service for more than 4 consecutive days, the **X-RAD Super-user (Doc. Pavelka) will perform a regular 20-minute preheating process** (most often during the weekend) so that no X-RAD user has to perform a **prolonged 60-minute X-ray lamp preheating** (which the X-RAD's embedded computer software requires only if the X-ray tube has not been used for more than 96 hours).

5. **ATTENTION**: It is therefore absolutely **essential** that each user **enters the scheduled time** of his/her X-RAD use **into the Calpendo reservation system well in advance** (at least 1-2 days in advance) - especially at the end of the current week and at the beginning of the following week!

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