

Procedure #: RAD60R-002 Rev. 0

SATISFACTORY:

PERFORMED BY _____ DATE _____

UNSATISFACTORY:

PERFORMED BY _____ DATE _____

COMMENTS:

REVIEWED BY (STAFF): _____ DATE _____

1.0 PURPOSE

The purpose of this Calibration Check Procedure is to verify the calibration of the RADOS RAD-60R Dosimeter and functions as per design. This procedure shall satisfy the acceptance criteria set forth to establish a traceable calibration.

2.0 REFERENCES

- 2.1 RADOS RAD-60/52 Service Manual Doc. No. 20933961 Version 1.1 08/97
- 2.2 Calibration Certificate for Source: Cs¹³⁷ with sufficient dose rate between 20 mR/hr – 100 R/hr

3.0 EQUIPMENT

- 3.1 Calibration Source with sufficient dose rate between 20 mR/hr - 100R/hr.
- 3.2 Calibrated Stopwatch

4.0 RESPONSIBILITIES

- 4.1 Test performer shall document all readings taken during this test.

5.0 PREREQUISITES

- 5.1 Install a new “AAA” battery in the RAD-60R Dosimeter.
- 5.2 Ensure the dosimeter is not physically damaged.
- 5.3 The calibration of the RAD-60R Dosimeter is performed using a calibrated radioactive source and stopwatch.
- 5.4 Press the pushbutton on the dosimeter until the display changes to CLr (Clear). This will reset the cumulative dose value displayed.
- 5.5 Press the pushbutton until a beep occurs. The display will flash the dose value.
- 5.6 Press and hold the pushbutton until a beep occurs. The cumulative dose value is now reset.
- 5.7 Press the pushbutton until the display reads dAL (Dose Alarm Level).
- 5.8 Press and hold the pushbutton until the alarm level is displayed.
- 5.9 Press the pushbutton until the display reads 100 R.
- 5.10 Press and hold the pushbutton. The display will flash the alarm value until there is a beep to set the alarm value for a 100 R dose. This value is significantly high so the dosimeter does not alarm during calibration.
- 5.11 Press the pushbutton until the display reads drA (Dose Rate Alarm Level).
- 5.12 Press and hold the pushbutton until the alarm level is displayed.

- 5.13 Press the pushbutton until the display reads 100 R/hr.
- 5.14 Press and hold the pushbutton. The display will flash the alarm value until there is a beep to set the alarm value for a 100 R/hr dose. This value is significantly high so the dosimeter does not alarm during calibration.

6.0 PROCEDURE

- 6.1 Take the RAD-60R Dosimeter in hand and press the pushbutton to turn the dosimeter ON and confirm all segments are displayed
- 6.2 Place the dosimeter in the calibrated source beam with the clip facing the source. Ensure the dosimeter detector is in the middle of the beam. The detector location is marked on the detector case below the clip.
- 6.3 Start the stopwatch immediately after placing the detector in the calibrated source field. Calculate the time of the exposure based on the dose rate. Example: 100 mR/hr dose rate for thirty (30) minutes the dose value on the dosimeter should read 60 mR/hr \pm 5.
- 6.4 After the time value has expired, remove the dosimeter from the source.
- 6.5 Record the dose value displayed on the dosimeter.
- 6.6 Verify the dosimeter is within tolerance (10%) of the expected reading.
- 6.7 Press the pushbutton on the dosimeter until the display changes to CLr. This will reset the cumulative dose value displayed.
- 6.8 Press the pushbutton until a beep occurs. The display will flash the dose value.
- 6.9 Press and hold the pushbutton until a beep occurs. The cumulative dose value is now reset.
- 6.10 Recheck the dosimeter calibration by placing in calibration beam and check any additional points of calibration interest using different dose rates.
- 6.11 Record the dosimeter readings for each point of calibration interest on the calibration sheet.
- 6.12 Reset the cumulative dose after each calibration point. Press the pushbutton until the display reads dAL (Dose Alarm Level).
- 6.13 Press and hold the pushbutton until the alarm level is displayed.
- 6.14 Press the pushbutton until the display reads 10 mR.
- 6.15 Press and hold the pushbutton. The display will flash the alarm value until there is a beep to set the alarm value for a 10 mR dose.
- 6.16 Place dosimeter in calibrated source beam with a significant dose rate to achieve a dose of 10 mR in a few minutes.
- 6.17 Verify an audible beep (2 beeps per second) will occur when the dosimeter is in Dose Alarm.
- 6.18 Verify the Dose Alarm functions.

- 6.19 Remove the dosimeter from the calibration beam.
- 6.20 Press the pushbutton on the dosimeter until the display changes to CLr. This will reset the cumulative dose value displayed.
- 6.21 Press the pushbutton until a beep occurs. The display will flash the dose value.
- 6.22 Press and hold the pushbutton until a beep occurs. The cumulative dose value is now reset.
- 6.23 Press the pushbutton until the display reads drA (Dose Rate Alarm Level).
- 6.24 Press and hold the pushbutton until the alarm level is displayed.
- 6.25 Press the pushbutton until the display reads 10 mR/hr.
- 6.26 Press and hold the pushbutton. The display will flash the alarm value until there is a beep to set the alarm value for a 10 mR/hr dose.
- 6.27 Place dosimeter in calibrated source beam with a dose rate greater or equal to 10 mR/hr to achieve a dose rate alarm.
- 6.28 Verify an audible beep (4 beeps per second) will occur when the dosimeter is in Dose Rate Alarm.
- 6.29 Verify the Dose Rate Alarm functions.
- 6.30 Remove the dosimeter from the calibration beam.
- 6.31 Press the pushbutton on the dosimeter until the display changes to CLr. This will reset the cumulative dose value displayed. Press the pushbutton until a beep occurs. The display will flash the dose value.
- 6.32 Press and hold the pushbutton until a beep occurs. The cumulative dose value is now reset.
- 6.33 Press the pushbutton until the display reads OFF.
- 6.34 Press and hold the pushbutton until there is a beep and the display is blank.

7.0 COMPLETION

- 7.1 Verify the values on the calibration sheet are within tolerance and the calibration sheet has been signed and dated.
- 7.2 If any dosimeter readings are out of tolerance, then the dosimeter must be sent to the manufacturer for repair and calibration.



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