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STANDARD OPERATING PROCEDURES (SOP)  
FOR  
DETERMINING THE APPARENT EXPOSURE RATE FROM A  
DEDICATED CHECK SOURCE FOR THE AN/PDQ-1 RADIAC

1. Upon return of each AN/PDQ-1 from the calibration facility, the apparent exposure rate from a dedicated check source in a fixed geometry shall be determined. The apparent exposure rate and date determined shall be conspicuously posted on the instrument.

2. The following procedure shall be used to determine the apparent exposure rate.

a. Place the cesium-137 dose calibrator check source on a flat surface, such as a counter top, in a low background area. (Note: Other sealed sources containing cesium-137 may be used. If a source other than the dose calibrator check source is used, the source shall be identified in this paragraph for the command-specific SOP.)

b. Place the DT-680/PDQ gamma/beta probe on the same surface as the source, at a distance of twelve (12) inches from the source, as shown in the enclosed diagram. The "+" on the closed shield on the side of the probe marks the center of the detector and should be aligned with the center of the check source. The twelve inch distance should be measured from the "+" on the end of the probe which marks the centerline of the detector tube. (Note: If a source other than the dose calibrator source is used, the distance between the source and detector may need to be changed to provide an acceptable apparent exposure rate. In this case, the geometry of the setup including the distance between the source and detector shall be recorded in this paragraph, and a diagram provided, for the command-specific SOP.)

c. Record the apparent exposure rate, date determined, and the initials of the person who made the measurement on the instrument. This information should be recorded on a label and fixed to the detector probe.

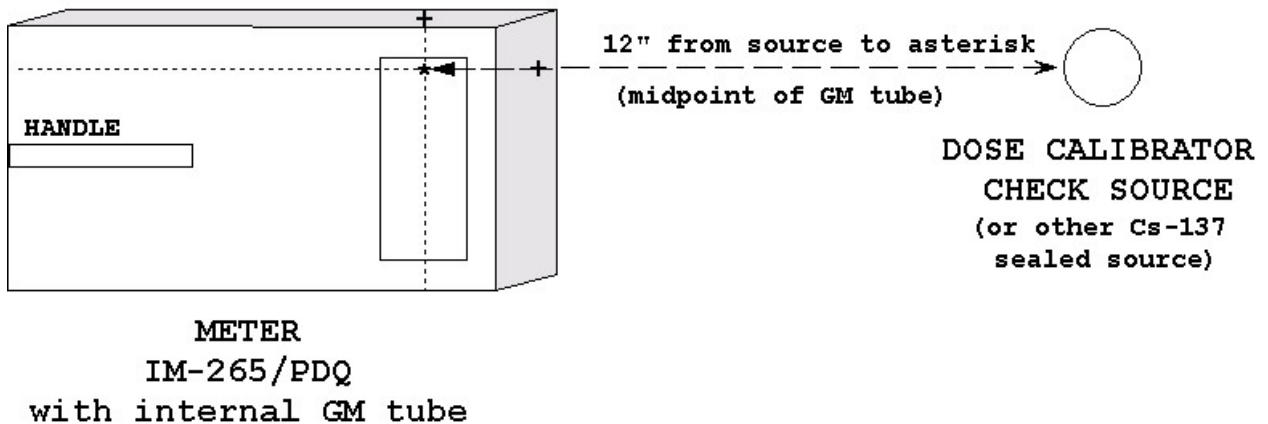
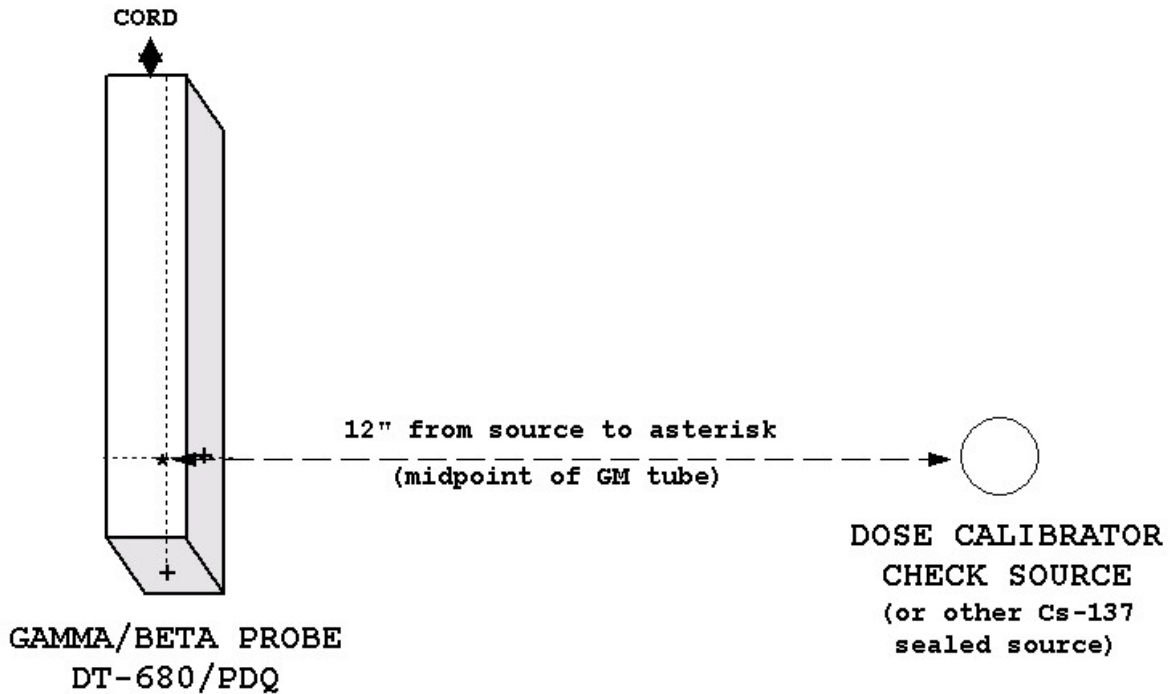
d. Repeat the measurement using the internal detector of the IM-265/PDQ RADIAC Meter, as shown in the enclosed diagram. The "+" on the end of the case marks the center of the detector and should be aligned with the center of the check source. The twelve inch distance should be measured from the "+" on the side of the meter case which marks the centerline of the detector tube. Attach the information to the meter case as in subparagraph c.

3. The procedure in paragraph 2 shall be used to check the instrument for proper operation each day of use as required by 10 CFR 35.51(c) by comparing the current apparent exposure rate to the apparent exposure rate recorded on the instrument. The source and detectors shall be placed at the same location used to determine the initial reading to limit any changes due to backscatter. The difference between the daily reading and the initial reading shall not exceed twenty (20) percent. No records of the daily check are required to be maintained.

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4. To ensure that there was no damage to the instrument during shipment from the calibration facility, the difference between the average of the last ten (10) apparent exposure rate determinations just prior to calibration and the rate determined upon return from calibration shall not exceed twenty (20) percent. If the difference exceeds twenty (20) percent, the instrument shall be returned to the calibration facility for recalibration.

## TOP VIEW



Use the "+"s marked on the sides of the gamma/beta probe and the meter to locate the midpoints of their respective GM tubes. The check source must be 12" from the midpoint, oriented as pictured above.

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