

Mineral Radiation Risks

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As a collector of radio-active minerals, I have always had some concern about storing them in my collection. I also have a weakness for acquiring nifty electronic gadgets, so when I saw a low cost radiation detector and dosimeter available on AliExpress for \$36, I could not resist.



A feature of this unit is that it has an accumulated dosage feature. This allows the total radiation over many hours to be added up. The accumulator memory can be reset and restarted so the radiation levels can be investigated at different locations. I was interested in radiation levels in my office room where I have several radioactive micros stored. Some of these are very “hot”, for example my recently collected 2.2 cm Parker Mtn. Mine, Strafford, NH uraninite, photo below.

First, I wanted to measure the background radiation level in my Amherst, NH home. Another area of interest is my basement “rock-room”, home to several additional radioactive specimens. (My “really hot” specimens are in a plastic tub in my backyard.)

The table below reports my collected data. The small booklet that came with the dosimeter stated that the “Dose limits for the public” is “Annual effective dose” = 1 mSv, (milli-Sievert). Although this dosimeter unit is of Chinese origin, the 1 mSv per year limit for the general public is in agreement with several web sources.

My data indicates that my office room (collected about 6 feet from my storage cabinets at rear of my computer chair) is no different than my bedroom ambient. My rock-room is about 2 X higher than ambient, but I spend little time there and my whole basement is a bit elevated, perhaps due to an elevated level of radon. (Several neighbors have radon mitigation

systems, but my basement tested below the limit.)

The dosimeter unit comes in a nice protective case. It is rechargeable via a supplied USB cable. The “Technical Parameters” state radiation is measured with a Geiger tube, the measurement range is 0.08 μ Sv to 50 mSv, and the Measurement accuracy is -17% to + 25% on a calibrated source. [tm] – quite broad !

Location	Date 2023	Collection time-hours	Total μ Sieverts	μ Sieverts Average per hr	milli Sieverts Year equivalent
Bedroom	10/23	141	10.9	.076	0.67
Office room	10/28	120	9.1	.076	0.67
Rock room- basement	11/4	139.5	19.4	.139	1.2
Basement center	11/10	124	11.0	.089	0.78



URANINITE Parker Mtn. Mine, Strafford, NH
2.2 cm crystal group



Dosimeter case, lanyard, and USB charging cable.
Case is 3 inches by 5 inches, (shown open)