

Airplane Radiation Levels to 40,000 Feet

It has been known for a long time that the ionizing radiation levels increase with altitude. We took a [Radex RD1212](#) ionizing radiation Geiger counter onto an airplane for a three hour flight and recorded the radiation every five minutes. This is what we found:

Product model: Radex 1212 and Radex 2510

Serial number: 04140101003009

File name: DeviceData.txt

Period From μ Sv/h

5m	12/12/2015 14:08:24	0.09	On Ground at Tucson International Airport, Arizona,USA
5m	12/12/2015 14:13:24	0.11	
5m	12/12/2015 14:18:24	0.09	
5m	12/12/2015 14:23:24	0.09	
5m	12/12/2015 14:28:24	0.09	
5m	12/12/2015 14:33:24	0.09	
5m	12/12/2015 14:38:24	0.07	
5m	12/12/2015 14:43:24	0.07	
5m	12/12/2015 14:48:24	0.11	
5m	12/12/2015 14:53:24	0.41	Take off and climbing to cruising altitude
5m	12/12/2015 14:58:24	1.42	
5m	12/12/2015 15:03:24	2.08	
5m	12/12/2015 15:08:24	2.41	
5m	12/12/2015 15:13:24	2.53	Reached 40,000 feet and cruising
5m	12/12/2015 15:18:24	2.67	
5m	12/12/2015 15:23:24	2.72	
5m	12/12/2015 15:28:24	2.90	
5m	12/12/2015 15:33:24	2.50	
5m	12/12/2015 15:38:24	2.55	
5m	12/12/2015 15:43:24	2.99	

5m	12/12/2015 15:48:24	2.86	
5m	12/12/2015 15:53:24	2.27	
5m	12/12/2015 15:58:24	2.26	
5m	12/12/2015 16:03:24	2.24	
5m	12/12/2015 16:08:24	2.31	
5m	12/12/2015 16:13:24	2.27	
5m	12/12/2015 16:18:24	2.40	
5m	12/12/2015 16:23:24	2.18	
5m	12/12/2015 16:28:24	2.35	
5m	12/12/2015 16:33:24	2.41	
5m	12/12/2015 16:38:24	2.35	
5m	12/12/2015 16:43:24	2.40	
5m	12/12/2015 16:48:24	2.39	
5m	12/12/2015 16:53:24	2.41	
5m	12/12/2015 16:58:24	2.27	
5m	12/12/2015 17:03:24	2.36	
5m	12/12/2015 17:08:24	2.30	
5m	12/12/2015 17:13:24	1.87	Descending to Seattle airport
5m	12/12/2015 17:18:24	1.13	
5m	12/12/2015 17:23:24	1.02	
5m	12/12/2015 17:28:24	1.01	
5m	12/12/2015 17:33:24	0.34	
5m	12/12/2015 17:38:24	0.13	
5m	12/12/2015 17:43:24	0.08	On ground at Seattle-Tacoma International Airport, USA
5m	12/12/2015 17:48:24	0.09	
5m	12/12/2015 17:53:24	0.08	

Video of the measurements can be seen here: Radex RD1212 Geiger Counter: From Sea Level to 40,000 feet <https://youtu.be/DOrOUu55U1w>

As you can see, the radiation levels increase significantly with altitude. The aircraft cabin peaked out at 3.12 microsieverts per hour. Relative to a base ground level average of 0.11 microsieverts, this was

an increase in ionizing radiation levels of over 28 times at cruising altitude!

More information on ionizing radiation can be found here:

- Absorption (electromagnetic radiation) [https://en.wikipedia.org/wiki/Absorption_\(electromagnetic_radiation\)](https://en.wikipedia.org/wiki/Absorption_(electromagnetic_radiation))
- Altitude <https://en.wikipedia.org/wiki/Altitude>
- Atmosphere of Earth https://en.wikipedia.org/wiki/Atmosphere_of_Earth
- Ionizing radiation https://en.wikipedia.org/wiki/Ionizing_radiation
- Radiation <https://en.wikipedia.org/wiki/Radiation>
- Radiation health effects https://en.wikipedia.org/wiki/Category:Radiation_health_effects
- Radiation: How much is harmful? http://quartarad.com/index.php?option=com_content&view=article&id=150:radiation-article&catid=36:demo-articles
- Radiation poisoning (disambiguation) [https://en.wikipedia.org/wiki/Radiation_poisoning_\(disambiguation\)](https://en.wikipedia.org/wiki/Radiation_poisoning_(disambiguation))
- Sievert <https://en.wikipedia.org/wiki/Sievert>

More information on the subject of altitude radiation can be found in the book Health Forensics:
<http://amzn.com/1494952947>

Very few people realize that the ionizing radiation levels on a commercial jet airplane at cruising altitude are approximately 28 times higher than ground level.

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