

Carcinogenicity of radio-frequency radiation in the occupational and military setting

Prepared jointly in October 2026 by:

Elihu Richter, ORCID 0000-0003-3218-7765

Michael Peleg, ORCID 0000-0002-7520-8741, peleg.michael@gmail.com

Dear sirs,

We took part in research reported in the five papers in the reference list below, together with other researches listed in the authors lists. The research provides a strong indication of carcinogenicity of Radio-Frequency Radiation (RFR). Following is the summary of those papers.

The research subjects:

Four different groups of young cancer patients previously exposed to RFR in the military and occupational setting.

The exposure:

The exposure was from military radio communication transmitters, from radar and from electronic warfare transmitters. The exposure was repetitive, typically over a year or more. The IDF (Israeli Defense Forces) exposure levels are guided by the occupational standards set by ICNIRP. These standards allow average power higher by a factor of 5 relative to the ICNIRP recommendations for the general population and by a factor of 50 relative to the Israeli recommendations for general population. Importantly, those standards almost do not limit the peak power of radar pulses provided the average power is within the limits. Power concentrated in strong pulses may be more bioactive as explained in the references.

Research methods:

The primary information we obtained was from the patients; most of them were trained operators, technicians and engineers. For small subgroups of patients, we knew the size of the whole exposed population and thus we were able to estimate cancer Risk Ratios (RR) relative to the general population. For most of the patients the size of the exposed population was not available. Therefore we examined also cancer characteristics since cancer characteristics which are very different from those of cancer patients from the general population indicate an additional carcinogen. We examined Percentage Frequencies (PF) of cancer types which analyzes the distribution of cancer types in a patient group and proportion of cancer patients suffering from multiple primaries.

The main results:

The RRs for cancer in the small subgroups were very high, e.g. 8, and statistically significant.

The PF of hematolymphoid cancers (leukemia, lymphoma, plasma cell cancers) was about twice the value observed in cancer patients from the general population and statistically significant.

The two results above are consistent with research results of other research groups in different countries, see table 7 and figure 4 in reference (4) and section 3.4 in reference (3).

Proportion of patients suffering multiple primaries as reported in reference (3) was higher by a factor of 4.5 than the value expected in the general population. This indicates a potent carcinogen. Such a dramatic rise in multiple primaries was not observed in our next work (4). We suggest the possibility that the latencies in (4) may not have been long enough to develop multiple primaries.

Our recommendations:

Radio Frequency Radiation (RFR) should be recognized as a human carcinogen.

Limit human exposure to low levels, for example $1\mu\text{W}/\text{cm}^2$ average level and $5\mu\text{W}/\text{cm}^2$ peak pulse level. The suggested average level is in the range of community levels reported in the literature. The higher recommended peak pulse level follows a rough estimate of typical Peak to Average Power Ratio (PAPR) of cellular communication using Orthogonal Frequency-Division Multiplexing (OFDM).

In the military and the occupational settings, reduce exposures to the lowest possible level, striving to the specifications in the paragraph above. Use Faraday barriers to reduce exposures at the source and personal level and any other technical and operational means required.

Document individual exposures and provide this information to all highly exposed humans. Provide the exposed humans with long-term periodical medical surveillance for cancer and for other health effects.

Perform epidemiological cancer research on all known personnel exposed to significant levels of RFR, the research documented here had access to less than a tiny portion of those.

Please see the recommendation section in reference (4) for more details.

Acknowledgement:

We thank the Environmental Health Trust for organizing, in Israel, two international conferences on RFR and EMF health aspects which enabled very useful information exchange among the participants.

References:

- 1) Richter E, Berman T, Ben-Michael E, Laster R, Westin JB. "Cancer in radar technicians exposed to radiofrequency/microwave radiation: sentinel episodes." *Int J Occup Environ Health*. 2000 Jul-Sep;6(3):187-93. doi: 10.1179/oeh.2000.6.3.187. PMID: 10926722.

- 2) M. Peleg: "Report on a Cancer Cluster in an Antenna Ranges Facility", *International IEEE Conference on Microwaves, Communications, Antennas and Electronic Systems, IEEE COMCAS 2009*, Tel Aviv, 9-11 November 2009. DOI: [10.1109/comcas.2009.5386048](https://doi.org/10.1109/comcas.2009.5386048)
- 3) Michael Peleg, Or Nativ, Elihu D. Richter: Radio frequency radiation related cancer: assessing causation in the occupational/military setting, *Environmental Research*, Volume 163, May 2018, Pages 123-133, ISSN 0013-9351, <https://doi.org/10.1016/j.envres.2018.01.003>.
(<https://www.sciencedirect.com/science/article/pii/S0013935118300045>)
- 4) M. Peleg, E. M. Berry, M. Deitch, O. Nativ, E. Richter: On radar and radio exposure and cancer in the military setting, *Environmental Research*, Volume 216, Part 2, Jan 2023, 114610, ISSN 0013-9351, <https://doi.org/10.1016/j.envres.2022.114610>
<https://www.sciencedirect.com/science/article/pii/S0013935122019375>
- 5) Peleg M, Berry E M, Deitch M, Nativ O, Richter E. 'Carcinogenicity of Radio-Frequency Radiation: Similarities and Differences Between Outcomes of Two Studies'. *Med Discoveries*. 2025; 4(7): 1267, <https://www.meddiscoveries.org/pdf/1267.pdf>, www.doi.org/10.52768/2993-1142/1267 Available also in https://www.researchgate.net/publication/394026389_Carcinogenicity_of_Radio_Frequency_Radiation_Similarities_and_Differences_Between_Outcomes_of_Two_Studies