

Starlink, Satellites And South African Emf Law: A Review Of Regulatory Adequacy And Ethical Concerns

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Abstract

This paper critically evaluates South Africa's legislative framework governing communications technology, with a specific focus on regulatory standards for electromagnetic field (EMF) exposure. EMFs, frequently emitted by technologies such as satellites, cell towers, and radio transmission systems, present increasing environmental and public health concerns. The study analyses the Independent Communications Authority of South Africa (ICASA) Act and the Electronic Communications Act 36 of 2005, both of which incorporate international standards from the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the World Health Organization (WHO). By benchmarking South African law against these global norms, the paper identifies notable regulatory gaps, particularly in the recognition and control of non-ionising radiation, potential microwave weaponization, and associated neuro-ethical risks. The analysis is anchored on two guiding questions: (1) whether South African law sufficiently regulates EMF emissions in both civilian and military contexts, and (2) whether existing exposure limits are substantively aligned with evolving international health recommendations. Utilising the deployment of Starlink's satellite technology as a contextual case study, the paper lays the foundation for a broader critique of the adequacy and responsiveness of current legal instruments in safeguarding environmental health in the digital age.

Keywords: Electromagnetic Fields (EMF), Starlink technology, Non-Ionising Radiation, Neuroethics