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Abstract:

This paper presents contemporary works related to energy harvesting (EH) and wireless power transfer. Energy Harvesting is the need of the hour. Radiation, Specific Absorption Rate (SAR) and recent works in wireless communication are discussed. Possibilities of energy harvesting in terms of Electromagnetic Energy (EME) for green environment are presented. In general, this paper reviews EH and linkage with EME with Friis Transmission equation. Brief comments on EME and antenna/human interface are also given.

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I. Introduction



In future 5-G systems, energy harvesting (EH) is expected to play a key role. Battery life requirements, increased online data usage and health related risks are very important to be investigated. Solar, wind and thermal energy are traditional EH sources. This paper describes and discusses Electromagnetic Energy (EME) as a source of EH. In general, radiation is received by 1) Antenna (transmitter or receiver) and 2) Human body. Antennas are integral part of radiation system. And radiation effect on human body is very important in terms of future 5-G communication. Mobile towers, Wi-Fi users and sensor node densities are increasing at a very high speed because of human addiction to online services. These online services include online games, online video/audio communication, online entertainment etc. To study these aspects, it is very important to analyze the behavior of EME relating to: 1)

Boundary conditions between EME and antenna

2)
Boundary conditions between EME and human skin

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