

RFID tags have a microchip for storing data and an antenna. Although there are different types of RFID tags, they work on the same basic principles. Libraries use “passive” RFID tags, which means they do not produce an electromagnetic field until they come in contact with a powered transmitter (an RFID tag reader). The RFID tag stores data on its microchip. When the tag’s antenna receives electromagnetic energy from an RFID reader, it uses power from the reader’s electromagnetic field to send radio waves back to the reader. The reader interprets the frequency of the radio waves to retrieve the data.

The use of radio waves to transmit information produces Electromagnetic Field (EMF) radiation. Radio frequency is a form of **non-ionizing radiation**, which means it is “not strong enough to affect the structure of the atoms it contacts.” (U.S. Environmental Protection Agency). At very high levels, RF energy *can* produce heat - this is the principle on which microwave ovens work.

The World Health Organization and other organizations have conducted extensive research into electromagnetic fields and potential health effects of prolonged exposure. They state: “in the area of biological effects and medical applications of non-ionizing radiation approximately 25,000 articles have been published over the past 30 years....scientific knowledge in this area is now more extensive than for most chemicals. Based on a recent in-depth review of the scientific literature, the WHO concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields.”

The International Commission on Non-ionizing Radiation Protection (an international, non-profit organization of scientists which examines potential health risks of various technologies and issues guidelines for proper use) reports that “a large number of occupational studies over several decades” as well as more recent studies of residential exposure have found **no evidence** of “a causal relation between RF [radio frequency] exposure and any adverse health effect.” They continue to monitor the technology as it develops, but their findings have been corroborated by several sources.

Several organizations, including the World Health Organization and the FDA, report that there is **no record of adverse health effects** related to RFID usage, and **no record of interference with pacemakers or other devices**.

Many technologies emit non-ionizing EMF radiation, including cell phones, wifi, televisions, computer screens, microwave ovens, power strips, LED displays, high power lines, cordless phones (especially the base station), and more. These are technologies that surround us in our everyday lives. However, even if the technologies are harmless by themselves, it is important to recognize that we don’t yet know how the cumulative effects of all of these technologies may impact us in the future.

In terms of energy emitted, RFID is very minimal in strength, and emits less radiation than any of the technologies mentioned above. RFID falls between AM and FM radio on the low end of the scale. Exposure is of very limited duration as the tags are passive and only emit EMF radiation when in contact with a reader. When a customer is roaming the stacks of the library or when they take library materials home, they are **not** being exposed to electromagnetic fields from the RFID.

Our goal is not to be dismissive of anyone’s concerns or to brush aside the unknown aspects of how technology may affect us long-term, but to offer some context and perspective for evaluating the risks.