Microwave is a form of electromagnetic radiation with wavelengths ranging from about one meter to one millimeter corresponding to frequencies between 300 MHz and 300 GHz respectively. Different sources define different frequency ranges as microwaves; the above broad definition includes both UHF and EHF (millimeter wave) bands. A more common definition in radio-frequency engineering is the range between 1 and 100 GHz (wavelengths between 0.3 m and 3 mm). In all cases, microwaves include the entire SHF band (3 to 30 GHz, or 10 to 1 cm) at minimum. Frequencies in the microwave range are often referred to by their IEEE radar band designations: S, C, X, Ku, K, or Ka band, or by similar NATO or EU designations.

The prefix micro- in microwave is not meant to suggest a wavelength in the micrometer range. Rather, it indicates that microwaves are "small" (having shorter wavelengths), compared to the radio waves used prior to microwave technology. The boundaries between far infrared, terahertz radiation, microwaves, and ultra-high-frequency radio waves are fairly arbitrary and are used variously between different fields of study.

Microwaves travel by line-of-sight; unlike lower frequency radio waves they do not diffract around hills, follow the earth's surface as ground waves, or reflect from the ionosphere, so terrestrial microwave communication links are limited by the visual horizon to about 40 miles (64 km). At the high end of the band, they are absorbed by gases in the atmosphere, limiting practical communication distances to around a kilometer. Microwaves are widely used in modern technology, for example in point-to-point communication links, wireless networks, microwave radio relay networks, radar, satellite and spacecraft communication, medical diathermy and cancer treatment, remote sensing, radio astronomy, particle accelerators, spectroscopy, industrial heating, collision avoidance systems, garage door openers and keyless entry systems, and for cooking food in microwave ovens.

In the present book, fifteen typical literatures about Microwave Technology published on international authoritative journals were selected to introduce the worldwide newest progress, which contains reviews or original researches on Microwave Technology. We hope this book can demonstrate advances in Microwave Technology as well as give references to the researchers, students and other related people.[1]

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[1] https://en.wikipedia.org/wiki/Microwave