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electromagnetic waves in the surrounding means that the magnitude of the power density decreases with the distance from the transmit antenna.

All the described disadvantages are compensated by the fact that wireless communications enable us to be mobile. And this is their big advantage.

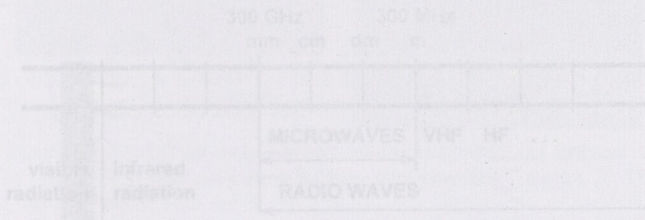


Fig. 1.1. Frequency spectrum, radio waves.

The transmitted information is usually carried by the harmonic wave characterized by the carrier frequency, the amplitude and the phase. Carrier frequencies below 300 GHz are called radio frequencies, carrier frequencies above 300 GHz are denoted as optical frequencies.

Let us emphasize once more that both the radio waves and the optical waves are of the same – electromagnetic – nature. At the beginning, we therefore remind the reader about the basics of electromagnetics and its historical roots.