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A **loop antenna** is a radio antenna consisting of a loop or coil of wire, tubing, or other electrical conductor, that for transmitting is usually fed by a balanced power source or for receiving feeds a balanced load. Within this physical description there are two (possibly three) distinct types:

- **Large loop** antennas (or *self-resonant loop antennas* or *full-wave loops*) have a perimeter close to one or more whole wavelengths at the operating frequency, which makes them self-resonant[a] at that frequency. They are the most efficient of all antenna types for both transmission and reception. Large loop antennas have a two-lobe radiation pattern at their first, full-wave resonance, peaking in both directions *perpendicular* to the plane of the loop[b]

- **Halo antennas** are shortened dipoles that have been bent into a circular loop, with the ends not quite touching. Some writers prefer to exclude them from loop antennas, since they can be well-understood as bent dipoles, others make halos an intermediate category between large and small loops, or the extreme upper limit for small loops: In shape and performance halo antennas are very similar to small loops, only distinguished by being self resonant and having much higher radiation resistance. (See discussion below)

- **Small loop** antennas (or *magnetic loops* or *tuned loops*) have a perimeter smaller than half the operating wavelength (typically no more than 1 /3~ 1 /4 wave). They are used mainly as receiving antennas, but are sometimes used for transmission despite their reduced efficiency; loops with a circumference smaller than about 1/ 10 wavelength become so inefficient they are rarely used for transmission.[c] A common example of small loop is the ferrite (loopstick) antenna used in most AM broadcast radios.[d] The radiation pattern of small loop antennas is maximum at directions *within* the plane of the loop, so perpendicular to the maxima of large loops

Wikipedia, the free encyclopedia