Depending on transmission and reception parameters, there are two main types of cognitive radio:

- *Full Cognitive Radio* (Mitola radio), in which every possible parameter observable by a wireless node (or network) is considered.[3]
- *Spectrum-Sensing Cognitive Radio*, in which only the radio-frequency spectrum is considered.

Other types are dependent on parts of the spectrum available for cognitive radio:

- *Licensed-Band Cognitive Radio*, capable of using bands assigned to licensed users (except for unlicensed bands, such as the U-NII band or the ISM band. The IEEE 802.22 working group is developing a standard for wireless regional area network (WRAN), which will operate on unused television channels.[4][5]
- *Unlicensed-Band Cognitive Radio*, which can only utilize unlicensed parts of the radio frequency (RF) spectrum.[*citation needed*] One such system is described in the IEEE 802.15 Task Group 2 specifications,[6] which focus on the coexistence of IEEE 802.11 and Bluetooth.[*citation needed*]
- *Spectrum mobility*: Process by which a cognitive-radio user changes its frequency of operation. Cognitive-radio networks aim to use the spectrum in a dynamic manner by allowing radio terminals to operate in the best available frequency band, maintaining seamless communication requirements during transitions to better spectrum.
- *Spectrum sharing*[7]: Spectrum sharing cognitive radio networks allow cognitive radio users to share the spectrum bands of the licensed-band users. However, the cognitive radio users have

to restrict their transmit power so that the interference caused to the licensed-band users is kept below a certain threshold.

- *Sensing-based Spectrum sharing*:[8] In sensing-based spectrum sharing cognitive radio networks, cognitive radio users first listen to the spectrum allocated to the licensed users to detect the state of the licensed users. Based on the detection results, cognitive radio users decide their transmission strategies. If the licensed users are not using the bands, cognitive radio users will transmit over those bands. If the licensed users are using the bands, cognitive radio users share the spectrum bands with the licensed users by restricting their transmit power.