

ABSTRACT

Now a days, there are a lot of spectrum frequency that allocated for telecommunication, but their use is unefficient. At some frequencies are too crowded, but at other frequencies are still rarely used. This is make of cognitive radio (CR). In the CR, the spectrum is assumed to belong to the primary user, but if the spectrum is not used other users are able to use it as long as Quality of Service (QoS) is good. CR consists of several modules, namely sensing antenna, spectrum sensing, spectrum decision, a switch controller, reconfigurable antenna. Sensing antenna is an antenna that can detection the spectrums which not used . Signal from sensing antenna, transmitted to the two modules, that is spectrum sensing and spectrum decision. Two modules are used to find the frequency which is not used and provide it to another user. Then the controller will switch the module to change the frequency reconfigurable antenna in order to adjust the frequency that has been detected by the previous module.

In this final project the author to design and realization of a microstrip antenna that serves as a sensing antenna. The antenna has dimensions that are small enough to be able to support mobile communications. Because the sensing function to detect the frequency of the antenna, the antenna works on a wide bandwidth. Ultra wideband is an antenna that has a bandwidth > 200 Mhz, so the technology was applied to the manufacture of sensing tersebutdapat antenna.

The result showed that the antenna with triangular patch and ridged groundplane can work at frequency 1.7 GHz to 20 GHz with the VSWR ≤ 2 .

Key word : *ultra wideband, sensing antenna, cognitive radio*