ABSTRACK

Limitation in spectral is one of issues in telecommunication. The rapid application growth of wireless technology making the issues becomes more important. But the major point is the inefficiency uses of spectral. One of methods that can overcome this issues is Cognitive Radio. This project designs a system that fulfill the Cognitive Radio qualification and also analyses the system model simulation.

Algorithm used in this project is Automatic Transmit Power Control (ATPC), which according to Joseph Mitola thesis was one of Cognitive Radio qualification. The Transform Domain Communication System (TDCS) used for analyzed because of its ability to find an idle frequency. Research on this project is about system model performance that used ATPC on TDCS.

From this model can be observe some parameter to analyzed. Some of them, it can be observe that the designed system model able to carry out channel selection with the smallest interference. Also, it able to control transmits power that cause channel SINR always above the SINR threshold. The channel SINR probability to be under the threshold is proportionate with the maximum amount of user in a channel. And for the increasing number of user, convergence point faster to reached. This convergence point used to analyses the channel response. Whereas for every condition, this algorithm able to follow its channel response.

From all of the parameter analysis, it indicate that the use of ATPC on TDCS fulfill the Cognitive Radio qualification.

Keywords : ATPC, TDCS, CR, Interference, Frequency