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JOINT POSITION VERIFICATION TECHNIQUE FOR PRIMARY USER EMULATION ATTACK

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Abstract

Cognitive Radio plays an important role in the area of the Wireless Communication. Cognitive Radio solves the major problem of the spectrum shortage and with the help cognitive radio it is possible to increase the efficiency of spectrum usage. However there is an important area which has received little attention and it is nothing but security of the CR. From security point of view it is required to protect primary as well as secondary user. Cognitive radio performs number of functions like spectrum sharing, sensing, management, mobility and security. Security in CR is critical issue, one need to specifically secure the CR from PUE attack. Primary User Emulation attack is one of the attacks to the spectrum sensing. In this attack, attacker takes the characteristic of the primary user so that secondary user cannot identify which is the primary user and which is the attacker. There are several methods to overcome this PUE attack including Transmitter Location Verification method, Distance Ratio Test (DRT), & Distance Difference Test (DDT). These are various techniques used to avoid PUE attack. We found that joint position verification of transmitter method is more suitable and accurate comparatively. Time Difference of Arrival (TDOA) & Frequency Difference of Arrival (FDOA) are used to enhance the positioning accuracy. Here the result of TDOA are explicitly shows the transmitter verification location accuracy.

Keywords : Spectrum Sensing, Primary User Emulation Attack, Location Verification, Cognitive Radio.