An overview of the IEEE 802.22 Standard

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Abstract – The IEEE 802.22 standard is the first standard based on Cognitive Radios (CR) for Wireless Regional Area Networks (WRAN). This standard was proposed in November/2004, by the IEEE 802.22 Working Group (WG) and published in a 2005 IEEE paper and was accepted and used by FCC (Federal Communication Commission). It's an air interface which is defined for allowing unlicensed users to work in TV bands when the incumbents (primary users) are not present in the network. To achieve enough flexibility and adaptability the CR techniques are used in this standard. This standard is considered in the design of the PHY (PHYsical) and the MAC (Media Access Control) layers of the network. In this research, we present an overview of this standard, its considerations, applications, advantages and disadvantages and methods to overcome its problems.

Keywords: ***Cognitive Radio, incumbent, IEEE 802.22, WRAN, PHY, MAC.***