An Overview of Digital Trunked Radio: Technologies and Standards

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Abstract

Land Mobile Radio (LMR) refers to the two-way radio communication system that allows users sharing the same range of frequency to communicate with the others. LMR can be roughly classified into two main systems which are conventional and trunked radio systems. In conventional system, a frequency band is permanently dedicated to a voice channel. However, using trunked radio system can increase the spectrum efficiency by having pool of frequencies which are temporarily assigned to a group of users called talk group only when required. In trunked radio system, analog trunked radio is going to be obsolete since digital trunked radio offers better functions and features in terms of voice quality, security, spectrum efficiency and cost. Hence, the commercial applications focus on the digital one. There are many digital trunked radio technologies lunched in the market. However, in this paper, only Terrestrial Trunked Radio (TETRA), Project 25 (P25) and Digital Mobile Radio (DMR) are discussed and compared since they are developed and standardized by international standards organizations. Moreover, these technologies are chosen by many users/operators and mostly deployed in many regions across the world.

Keywords : Terrestrial Trunked Radio, Project 25, Digital Mobile Radio, Digital Trunked Radio, Land Mobile Radio, Private Mobile Radio

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