

KEY TECHNOLOGIES AND FRAMEWORKS OF 4TH GENERATION MOBILE COMMUNICATION SYSTEM

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Abstract

Fourth-Generation (4G) is a term used to describe the next complete evolution in *wireless communications*. A 4G system will be able to provide a comprehensive IP solution where voice, data and streamed multimedia can be given to users on an "Anytime, Anywhere" basis and at higher data rates than previous generations. As the second generation was a total replacement of the first generation networks and handsets; and the third generation was a total replacement of second generation networks and handsets: so too, the fourth generation cannot be an incremental evolution of current 3G technologies, but rather the total replacement of the current 3G networks and handsets. The international telecommunications regulatory and standardization bodies are working for commercial deployment of 4G networks within a time of scale 2012-2017. There is no formal definition for what 4G is. However, there are certain objectives that are projected for 4G such as it should be entirely packet switched network and a fully IP-based integrated system; capable of providing speeds between 100 Mega bits and 1 Giga bit both indoors and outdoors with premium quality and tight network security. It also supports higher bandwidths to provide multimedia services at lower cost up to 100Mbps. All network elements are digital. This paper presents an overall vision of the 4G features, framework and integration of mobile communication.

Keywords: 4G Mobile Communication, Vision of 4G, Orthogonal Frequency Division Multiplexing (OFDM), Software Defined Radio (SDR), Convergence of Cellular Mobile Networks, Multi-career, GPRS (General Packet Radio Services), GSM (Global Specification of Mobile Communication), WCDMA (Wireless Code Division Multiple Access).