

A review of multiple access techniques and frequencies requirements towards 6G

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ABSTRACT

The fifth generation (5G) wireless network was a revolution. However, the rapid expansion of new applications such as extended reality, telemedicine, and the internet of everything necessitates higher data speeds, lower latency, and more reliability. These needs inspire academics and industries to introduce the sixth generation (6G) to overcome the limitations of 5G and meet the demands of future applications. This article reviews the 6G vision and proposed technologies that expect to be used in the 6G network benefits and challenges. This review's contribution investigates multiple access techniques, focusing on filter bank multi-carrier. These multiple-access techniques were studied and compared in terms of spectrum efficiency, cyclic prefix, and MIMO compatibility. We found that FBMC is the best candidate for 6G.

KEYWORDS

6G; Key performance indicators; Multiple access technique; THz (Terahertz) communication; UM-MIMO (Ultra-massive-Multiple Input Multiple Output)

ACKNOWLEDGEMENT

The authors thank the Ministry of Higher Education for providing the largest financial support under the Fundamental Research Grant Scheme (FRGS) No. FRGS/1/2019/STG02/UMP/01/1 (University reference RDU1901112), MTUN Matching Grant (RDU212802 and UIC211503) and Universiti Malaysia Pahang for additional financial support under Internal Research grant RDU213307 and PGRS200313.