

## 5G Future Hyper-Dense Networks: An Empirical Study and Standardization Challenges

**Authors :** W. Hashim, H. Burok, N. Ghazaly, H. Ahmad Nasir, N. Mohamad Anas, A. F. Ismail, K. L. Yau

**Abstract :** Future communication networks require devices that are able to work on a single platform but support heterogeneous operations which lead to service diversity and functional flexibility. This paper proposes two cognitive mechanisms termed cognitive hybrid function which is applied in multiple broadband user terminals in order to maintain reliable connectivity and preventing unnecessary interferences. By employing such mechanisms especially for future hyper-dense network, we can observe their performances in terms of optimized speed and power saving efficiency. Results were obtained from several empirical laboratory studies. It was found that selecting reliable network had shown a better optimized speed performance up to 37% improvement as compared without such function. In terms of power adjustment, our evaluation of this mechanism can reduce the power to 5dB while maintaining the same level of throughput at higher power performance. We also discuss the issues impacting future telecommunication standards whenever such devices get in place.

**Keywords :** dense network, intelligent network selection, multiple networks, transmit power adjustment

**Conference Title :** ICWCA 2014 : International Conference on Wireless Communications and Applications

**Conference Location :** Barcelona, Spain

**Conference Dates :** October 27-28, 2014